Weinland, Arthur A., Box 167, Jacksonville, Alabama 36265
Whitsett, Robert M., Walla Walla College, Physics Dept., College Place, Washington 99324
Wilson, Jr., Dennis Arthur, Box 251, Hanover, Indiana 47243
Younker, James Sylvester Jr., 508 E. Winter, Greenville, Illinois 62246

Junior Members

Albrizio, Rose Anne M., Bruce Park Drive, Greenwich, Connecticut 06832
Alder, Donald B., 837 20th Street, Santa Monica, California 90403
Bick, Frederick A., 312 15th Street, Seal Beach, California 90740
Brandli, Allan Edward, 3800 St. Paul, Lincoln, Nebraska 68504
Bronson, James Linder, 440 Krameria, Denver, Colorado 80220
Clausen, Kermit Dean, 1214 No. Howard, Grand Island, Nebraska
Copeland, Larry Bruce, R. R. 1 Box 30, Greenwood, Indiana 46142
Crooker, Marilyn Mary, P. O. Box 137, Collegedale, Tennessee 37315
Dale, Charles Jeffrey, 2304 Tampa Avenue, Cleveland, Ohio 44109
Dillon, Thomas Andrew, 59 Manchester Road, Eastchester, New York
Edwards, Donald Robert, 59 Gove Street, Manchester, New Hampshire 03102
Fox, Ray H., R. D. #2, Catawiss, Pennsylvania 17820
Francis, Robert Walter, 2250 Bryn Mawr Ave., Philadelphia, Pennsylvania 19131
Funk, Clarence John, 1139 W. Duarte, Apt. F, Arcadia, California 91006
Gaidry, Thomas Hart Taylor, 256 East Main Street, Rapid City, South Dakota
Hagengruber, Robert Louis, 837 Hughes Pl., Madison, Wisconsin 53713
Harwin, Robert Francis, 419 85th Street, Brooklyn, New York 11209
Howard, Fred P., 517 Homassel, Lindsay, California 93247
Jackson, Lawrence Frisbie, Physics Department, University of Virginia, Charlottesville, Va. 22903
Kluk, Anthony, F., Vanderbilt University, Department of Physics, Nashville, Tennessee 37203
Longo, Stephen A., 534 Alcott Street, Philadelphia, Pa. 19120
Matchko, Roy Marshall, N 8 Pine Grove, Ypsilanti, Michigan 48197
May, James Lewis, 17500 Strathern, Northridge, California 91324
Nelson, Charles Edward, 508½ Napoleon Street, Johnstown, Pa. 15905
Novelo, Eduardo, Alta mira no. 7–301, Mexico, D. F. 4
Olson, Lynn Mary, 433 W. Gilman Street, Madison, Wisconsin 53703
Orton, Charles Nichols, 803 South Spruce, Delavan, Illinois 61734
Pastore, Richard Michael, 19th Engineer Bn. (c) (a) APO 96238, San Francisco, California
Potts, John E. Jr., 3516 Menomonee Riv. Pkwy., Wauwatosa, Wisconsin 53222
Richard, Thomas Gerard, 617 High Street, Moncton, New Brunswick, Canada
Scott, Jr., Vaughan Daniel, 213 W. San Antonio Street, San Marcos, Texas 78666
Stein, Talbert Sheldon, 23 C Sagamore Way, Waltham, Massachusetts 02154
Stephens, Timothy Lee, 2646 42nd Ave., W., Seattle, Washington 98199
Strauch, Paul Gabriel, 19526 S. Hinsdale, Torrance, California 90503
Tansey, Richard Joseph, 321 Textile Street, Lowell, Massachusetts
Wheaton, Bruce R., 3831 Franklin Ave., Los Angeles, California 90027
Whetstone, Jr., G. Michael, 1160 N. W., 108th Street, Miami, Florida 33168

AMERICAN JOURNAL OF PHYSICS VOLUME 34, NUMBER 12 DECEMBER 1966

Author Index to Volume 34

In this index are listed names of authors and titles of their articles and notes. Abstracts or titles of papers read at meetings are designated by the letter (A) after the number of the page on which the abstract or title may be found. The symbol (L) after an entry signifies a Letter to the Editor. The symbol (TO) designates title of a paper read at a meeting and (N) designates a contribution to Notes and Discussion.

Adams, W. D. and Jerome L. Duggan. The $^7Li(p, \alpha)\alpha$ reaction, an ideal experiment for the modern physics laboratory—181(A)
Adler, Alan D. and Michael Hane. A simple Mössbauer-effect apparatus—189
Ahearne, John F. Introductory physics experiments using a digital computer—309
Albert, M. B. (see Clem, P. L., Jr.)—283
Alberts, L. An instructive bomb experiment—707(L)
Allen, P. J. A radiation torque experiment—1185
Anderson, David L. Resource letter ECAN-1 on the electronic charge and Avogadro's number—2
Anderson, Milo V. Knowing physics is not enough—727(A)
Anderson, O. T. and M. P. Bedesem. The development of a ruby laser system as an undergraduate project—296

Weinland, Arthur A., Box 167, Jacksonville, Alabama 36265
Whitsett, Robert M., Walla Walla College, Physics Dept., College Place, Washington 99324
Wilson, Jr., Dennis Arthur, Box 251, Hanover, Indiana 47243
Younker, James Sylvester Jr., 508 E. Winter, Greenville, Illinois 62246

Junior Members

Albrizio, Rose Anne M., Bruce Park Drive, Greenwich, Connecticut 06832
Alder, Donald B., 837 20th Street, Santa Monica, California 90403
Bick, Frederick A., 312 15th Street, Seal Beach, California 90740
Brandli, Allan Edward, 3800 St. Paul, Lincoln, Nebraska 68504
Bronson, James Linder, 440 Krameria, Denver, Colorado 80220
Clausen, Kermit Dean, 1214 No. Howard, Grand Island, Nebraska
Copeland, Larry Bruce, R. R. 1 Box 30, Greenwood, Indiana 46142
Crooker, Marilyn Mary, P. O. Box 137, Collegedale, Tennessee 37315
Dale, Charles Jeffrey, 2304 Tampa Avenue, Cleveland, Ohio 44109
Dillon, Thomas Andrew, 59 Manchester Road, Eastchester, New York
Edwards, Donald Robert, 59 Gove Street, Manchester, New Hampshire 03102
Fox, Ray H., R. D. #2, Catawiss, Pennsylvania 17820
Francis, Robert Walter, 2250 Bryn Mawr Ave., Philadelphia, Pennsylvania 19131
Funk, Clarence John, 1139 W. Duarte, Apt. F, Arcadia, California 91006
Gaidry, Thomas Hart Taylor, 256 East Main Street, Rapid City, South Dakota
Hagengruber, Robert Louis, 837 Hughes Pl., Madison, Wisconsin 53713
Harwin, Robert Francis, 419 85th Street, Brooklyn, New York 11209
Howard, Fred P., 517 Homassel, Lindsay, California 93247
Jackson, Lawrence Frisbie, Physics Department, University of Virginia, Charlottesville, Va. 22903
Kluk, Anthony, F., Vanderbilt University, Department of Physics, Nashville, Tennessee 37203
Longo, Stephen A., 534 Alcott Street, Philadelphia, Pa. 19120
Matchko, Roy Marshall, N 8 Pine Grove, Ypsilanti, Michigan 48197
May, James Lewis, 17500 Strathern, Northridge, California 91324
Nelson, Charles Edward, 508½ Napoleon Street, Johnstown, Pa. 15905
Novelo, Eduardo, Alta mira no. 7–301, Mexico, D. F. 4
Olson, Lynn Mary, 433 W. Gilman Street, Madison, Wisconsin 53703
Orton, Charles Nichols, 803 South Spruce, Delavan, Illinois 61734
Pastore, Richard Michael, 19th Engineer Bn. (c) (a) APO 96238, San Francisco, California
Potts, John E. Jr., 3516 Menomonee Riv. Pkwy., Wauwatosa, Wisconsin 53222
Richard, Thomas Gerard, 617 High Street, Moncton, New Brunswick, Canada
Scott, Jr., Vaughan Daniel, 213 W. San Antonio Street, San Marcos, Texas 78666
Stein, Talbert Sheldon, 23 C Sagamore Way, Waltham, Massachusetts 02154
Stephens, Timothy Lee, 2646 42nd Ave., W., Seattle, Washington 98199
Strauch, Paul Gabriel, 19526 S. Hinsdale, Torrance, California 90503
Tansey, Richard Joseph, 321 Textile Street, Lowell, Massachusetts
Wheaton, Bruce R., 3831 Franklin Ave., Los Angeles, California 90027
Whetstone, Jr., G. Michael, 1160 N. W., 108th Street, Miami, Florida 33168

AMERICAN JOURNAL OF PHYSICS VOLUME 34, NUMBER 12 DECEMBER 1966

Author Index to Volume 34

In this index are listed names of authors and titles of their articles and notes. Abstracts or titles of papers read at meetings are designated by the letter (A) after the number of the page on which the abstract or title may be found. The symbol (L) after an entry signifies a Letter to the Editor. The symbol (TO) designates title of a paper read at a meeting and (N) designates a contribution to Notes and Discussion.

Adams, W. D. and Jerome L. Duggan. The $^7Li(p, \alpha)\alpha$ reaction, an ideal experiment for the modern physics laboratory—181(A)
Adler, Alan D. and Michael Hane. A simple Mössbauer-effect apparatus—189
Ahearne, John F. Introductory physics experiments using a digital computer—309
Albert, M. B. (see Clem, P. L., Jr.)—283
Alberts, L. An instructive bomb experiment—707(L)
Allen, P. J. A radiation torque experiment—1185
Anderson, David L. Resource letter ECAN-1 on the electronic charge and Avogadro's number—2
Anderson, Milo V. Knowing physics is not enough—727(A)
Anderson, O. T. and M. P. Bedesem. The development of a ruby laser system as an undergraduate project—296

Anderson, William W. Review of *Electromagnetic and quantum properties of materials*—1072
Andrews, M. Ground state of the one-dimensional hydrogen atom—1194(N)
Ansbacher, F. Classical canonical transformations without the use of Hamilton's principle—1020
Armstrong, H. L. Aristotle's views on theory and experiment—168(L)
—— On the form in which Newton's law is expressed—982(N)
—— On the need of housecleaning in the teaching of mechanics—1031
—— Optimum damping—824(N)
—— Reply to Hooper's letter—364(L)
—— Review of *Calculator's cunning*—174
—— Review of *Discovering physics*—708
—— Review of *Electricity and magnetism*—629
—— Review of *A laboratory course in physics, book two*—628
—— Review of *Principles of electrodynamics*—826
—— Review of *Teach yourself statics and hydrostatics*—829
—— Review of *Theory of elasticity and plasticity*—545
—— Review of *Viscosity of electrolytes and related properties*—280
—— Weighing the moon—985(N)
Aron, Ivan. Evaluation of courses for nonmajors: experiences and recommendations—727(A)
—— Two overhead projector demonstrations—286(TO)
Arons, Arnold. Educational uses of an awareness of history of evolution of various physical concepts—720(A)
—— An historical note and summary regarding resource letters—540
—— Review of *The collected papers of Lord Rutherford of Nelson, vol. III*—828
—— Review of *Science in the 19th century*—709
—— Review of *Underwater acoustics handbook II*—546
Axel, Peter. Review of *Alpha-, beta-, and gamma-ray spectroscopy*—275
Aziz, Ronald A. Demonstration of single crystal making—167(N)
—— Kepler's third law—538(N)

Baker, D. James, Jr. Demonstrations of fluid flow in a rotating system—647
—— Resource letter PB-1 on physics and biology—83
—— Time dependence of fluorescent lamp emission—a simple demonstration—627(L)
Baker, Harry J. Note on photography instruction—170(L)
Ballard, Stanley S. The quandary of academic optics—184(A)
Banet, Leo. The evolution of the Balmer series—496
Banks, L. E., Jr. Reply to letter of J. I. Shonle—819(N)
Banta, H. E. and J. L. Duggan. An activation analysis experiment for any physics department—181(A)
Barlow, B. L. (see Mooney, C. F.)—732
Barr, E. Scott. Anniversaries in 1966 of interest to physicists—19
—— A widely available but easily overlooked source for portraits of early physicists—283(A)
Bartling, Judd Q. Autocorrelation spectroscopy—974
Bayman, Benjamin F. Isobaric spin without charge space—216
—— Review of *Electricity and magnetism*—830
—— Review of *A short course on the application of group theory to quantum mechanics*—628
Beatty, Millard F. Kinematics of finite, rigid body displacements—949
Beauregard, L. A. Propagators in nonrelativistic quantum mechanics—324
Bedesem, M. P. (see Anderson, O. T.)—296
Bekefi, G. and Sanborn C. Brown. Resource letter PP-2 on plasma physics: waves and radiation processes in plasmas—1001
Benham, T. A. Encouragement for the blind scientist—721(A)
Bents, U. H. Reproductions and the revised copyright law—732(A)
Bersohn, Malcolm. Uncertainty principle and normal operators—62
Bevc, Vladislav. Vector differential operations derived from physical definitions—507
Biser, Roy H. (see Rigney, Carl J.)—623
Blewett, John P. Resource letter PA-1 on particle accelerators—742
Block, B., R. D. Moore, and P. Roos. Do-it-yourself Knudsen gauge—159
Bloor, D. An advanced optical experiment—an extension—624(N)
Blum, N. A. and R. B. Frankel. Mössbauer experiments in external magnetic fields: I. Fundamentals—731(A)
—— (see Frankel, R. B.)—731(A)
Bober, William. A simplified derivation of Bogoliubov's generalized Boltzmann equation—807
Boekelheide, Irving (see Rabinoff, Carter V.)—130
Bork, Alfred M. Information requested about use of computers—1199(L)
—— Computers and the nonscience major—926
—— Quantum-mechanical harmonic oscillator (a computer-produced film)—470
—— Quantum-mechanical harmonic oscillator—a computer produced film—730(A)
—— Vectors versus quaternions—The letters in *Nature*—202
Bow, Y. F. Orbital angular momentum operator in spherical coordinate system—537(N)
—— Two equivalent valence electrons—67(N)
Boyer, Robert A. Acoustical interferometer for "open-ended" laboratory—946
Boyer, Timothy H. Derivation of conserved quantities from symmetries of the Lagrangian in field theory—475
Braestrup, C. B. Radiation protection in teaching institutions—1193(N)
Bragg, Lincoln E. and L. R. Turner. Quadratic constants of the motion for the classical harmonic oscillator—963
Bregman, Judith. Animated films—722(A)
Brick, D. B. and A. W. Snyder. Authors' response to comments on "External dc field of a long solenoid"—818(N)
Brittin, Wesley E. Uncertainty principle and normal operators—some comments—957
Brown, G. Burniston. Resonant detection of light pressure—272(L)
Brown, Sanborn C. (see Bekefi, G.)—1001
Bruce, C. W. Measurement of moderately high resistance—a simple method—819(N)
Buch, Tomas. Quantum mechanics as a model—653
Buchta, J. W. *The Physics Teacher*, a report on the journal—730(A)
Bullis, Robert H. (see Meyerand, Russell G., Jr.)—122
Bunge, Mario. Mach's critique of Newtonian mechanics—585
Burke, John G. Descartes on the refraction and the velocity of light—390
Burns, J. C. Grad ϕ and curl $\mathbf{v}$—268(N)
—— Noncentral forces—164(N)
Burnstein, R. A. (see Whiteside, H.)—1005
Butrymowicz, Daniel B. Review of *Conductors and semiconductors*—279
—— Review of *Electronics of solids*—370
—— Review of *The new intelligent man's guide to science*—713
—— Review of *Solids: elementary theory for advanced students*—1072
Butts, J. J. (see Katz, Robert)—986(N)

Calandra, Alexander. Physics in the elementary schools—727(A)
—— Report by regional AIP and AAPT counselor—374(TO)
Calkin, M. G. Linear momentum of quasistatic electromagnetic fields—921
Carver, Thomas R. Review of *The nature of solids*—711
—— **and Robert B. Partridge.** Monitoring operators in magnetic resonance and light modulation—339
Caudill, G. Wayne (see Miller, Don W.)—615
Caulfield, H. J. Uncertainty and diffraction—1066(N)
—— **and D. D. Eden.** Optical near field of a He–Ne laser—439
Cavalleri, G. Relativistic equations of motion with forces depending on particle velocity in media—901
Cavanagh, P. Method for displaying lines of force in an electrostatic field—1034
Chandrasekaran, K. S. A demonstration analog device for solving linear simultaneous equations—359(N)
Chefurka, Patricia M. Equipment for nonuniform acceleration—706(L)
—— Modifications for centripetal force apparatus—708(L)
Chen, Henry S. C. New Atwood's machine attachment—955
—— A note on a new Atwood's machine attachment—187(A)
Cheng, Chien-Chung. Maxwell's equations in dynamics—622(N)
Christy, Donald O. (see Hall, George L.)—526

Clark, C. C. The what and how of college physical science—284(A)
Clark, Clifton Bob. A rotational dynamics experiment—720(A)
Clark, T. A. Novel way of introducing the concepts of a magnetic induction field to nonspecialist students—1069(L)
Clem, John R. and Robert P. Godwin. Dynamical properties of a one-dimensional "crystal" with free ends—460
Clem, P. L., Jr., M. R. Albert, and L. Morrow. An automatic-programming keyboard computer system for physicists—283(A)
Clotfelter, Beryl E. (see Hanson, Roger J.)—75
Cohen, Leon. Transformation of operators—684
Collins, R. E. Structure of physical theory—489
Condon, E. U. William Shipley's barometer (1748)—358(N)
Coon, Darryl D. Counting photons in the optical barrier penetration experiment—240
Cooper, Paul W. Further commentary on "Through the earth in forty minutes"—703(N)
—— Through the earth in forty minutes—68(N)
Corngold, Noel. Review of *Neutron physics*—831
—— Review of *Phase transitions*—830
Cowan, E. W. Electric analog network for quantum mechanics—1122
Cowperthwaite, M. Significance of some equations of state obtained from shock-wave data—1025
Cralle, Robert K. Language for making movies on a computer—870
—— A language for making films on a computer—724(A)
Crane, H. R. A half-life measurement in 1054 A.D.—286(TO)
—— Experiments in teaching captives—799
—— Leonard I. Schiff: Oersted medalist for 1965—453
Crawford, C. K. Matrix optics conventions—1198(N)
Crawford, Julian A. A research topic for small colleges: thermoluminescence—235
Cronin, James L., Jr., and Leonard C. Jones. A laboratory model for inverse-square central force motion—719(A)
Cunningham, Donald E. A developing university and the NASA multi-disciplinary research program—185(A)

David, Carl W. Ladder operator solution for the hydrogen atom electronic energy levels—984(N)
David, Edward E., Jr. Man-made world, a new course for high schools—729(A)
Davis, Sumner P. (see Eakin, David M.)—758
Davisson, Richard and Alan Holden. A multilevel sequence of experiments with pendulums—724(A)
Daw, Harold A. An experimental introduction to kinetic theory—724(A)
Daybell, Melvin D. An undergraduate Stern-Gerlach apparatus—187(A)
Deeds, W. E. Teaching college physics by closed-circuit television—181(A)
Denman, Harry H. On linear friction in Lagrange's equation—1147
—— On the derivation of Newton's laws—286(TO)
—— (see Podolsky, Boris)—814
De Rocco, Andrew G. Review of *Some electrical and optical aspects of molecular behaviour*—176
—— Review of *The statistical mechanics of simple liquids*—1209
de Voight, M. J. A. (see ten Bosch, J. J.)—479
Dodd, Jack G. Contemporary physics I and II—39
Donnally, Bailey L. Apparatus review: Comparison of Franck–Hertz tubes and apparatus—366
Dosso, H. W. Study on predicting performance in University physics and mathematics—269(N)
Dotson, Allen C. Yang–Mills groups and fields—670
Dough, Robert L. Computer assisted instruction in the laboratory—282(A)
Drake, Eric. Deductions from a kinematic principle of relativity—899
—— Deductions from a kinematic principle of relativity (erratum)—1202
Drozin, V. G. Professional preparation of high school physics teachers—726(A)
Dudley, H. C. Pu/Be simulated reactor units—283(A)
Duggan, J. L. (see Banta, H. E.)—181(A)
—— (see Adams, W. D.)—181(A)
Dunman, F. E. An advanced laboratory in atomic and nuclear physics—282(A)
Dwight, C. Harrison. Review of *Elements of cloud physics*—446
—— Review of *Collected papers on acoustics*—370
—— Review of *Dialogues concerning two new sciences*—279
—— Review of *Dictionary of pure and applied physics*—278
—— Review of *Faraday, Maxwell, and Kelvin*—276
—— Review of *The habitable earth*—281
—— Review of *Matter, earth, and sky*—447
—— Review of *Mirrors, prisms and lenses: a textbook of geometrical optics*—373
—— Review of *Neighbors of the earth, planets, comets, and the debris of space*—368
—— Review of *Physics of the earth's upper atmosphere*—630
—— Review of *Principles and methods of measuring humidity in gases*—543
—— Review of *Temperatures: very low and very high*—447

Eakin, David M. and Sumner P. Davis. An application of matrix optics—758
Earl, James A. Modified version of the MIT Rutherford scattering apparatus for use in advanced undergraduate laboratories—483
—— Undergraduate experiment on thermal and shot noise—575
Eden, D. D. (see Caulfield, H. J.)—439
El-Hakeem, A. S., R. A. Gaggioli, and I. C. Romer, Jr. Refined method for measuring the sound wavelength in gases—discussion—1197(N)
Elton, L. R. B. and Daphne F. Jackson. X-ray diffraction and the Bragg law—1036
Emerson, Marianne M. Review of *Quick calculus, a short manual of self-instruction*—546
Eppenstein, W. Selected experiments from the Rensselaer workshop—184(A)
—— Using films in and out of the classroom—722(A)
—— **and R. Resnick.** The Rensselaer workshop for apparatus development—183(A)
Epstein, Saul T. Spin without commutation rules—762
Erlichson, Herman. Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course—519
—— Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course—720(A)
Evans, R. E. and A. A. Putnam. Rijke tube apparatus—360(N)
Evett, Arthur A. Permutation symbol approach to elementary vector analysis—503

Farmer, Gerald. Derivation of Compton scattering relation in covariant notation—614(N)
Feather, N. Additivity of mass in Newtonian mechanics—511
Feldman, Alexander L. An improved velocity of sound apparatus—729(A)
Fermor, J. H. Quantum-mechanical tunneling—1168
Ferris-Prabhu, A. V. M. Enumerating neighbors in diamond-like lattices—645
Fisher, L. H. and R. N. Varney. Transference numbers in ionized gases—228
Foland, William D. Review of *Early electrodynamics—the first law of circulation*—1210
—— Review of *Men of physics: L. D. Landau, Vol. I. Low temperature and solid state physics*—1207
Forbes, Stephen H. Approaching the square root of two—154
Forster, Irving G. Integrated science for nonscience majors—284(A)
Fowler, John M. Progress report of the commission on college physics—834
Fox, Kenneth and J. E. Turner. WKB treatment of bound states in an electric dipole potential—606
Fradkin, David M. Comments on a paper by Majorana concerning elementary particles—314
Francis, Brother Columban, F.S.C. The use of overhead projectors—721(A)

Frankel, R. B. (see Blum, N. A.)—731
—— **and N. A. Blum.** Mössbauer experiments in external magnetic fields: II. Applications—731(A)
Franklin, Richard (see Haller, Charles)—729
Freier, George D. Review of *Introduction to physics*—992
Freire, Gabriel F. Force-free magnetic field problem—567
Frisch, David H. The microscopic interpretation of entropy—1171
Fuson, Nelsón (see Lawson, James R.)—284

Gabbard, R. F. A demonstration of a laser—285(TO)
Gadsden, Christopher P. Laws of motion for variable mass systems—987(N)
Gaggioli, R. A. (see El-Hakeem, A. S.)—1197(N)
—— **and J. W. Mitchell.** Thermocouple corrections from irreversibility theory—549
Gallar, Norman M. The infrared program of the University of Tennessee: the study of line shapes and strengths—186(A)
Gaisser, T. K. Operator gauge transformations and gauge transformations of the third kind—597
Galonsky, Aron. Michigan State University cyclotron report—286(TO)
Ganley, W. Paul (see Michels, Walter C.)—452
—— The lengthening pendulum: an experiment to test the adiabatic approximation—718(A)
Gardiner, W. C., Jr. (see Proffitt, M. H.)—163(N)
Gardner, M. E. Falling cylinders—822(N)
Garrett, Richard E. Rotary-motion demonstration apparatus—283(A)
Gatlin, Lila L. A logical proof of the entropy principle—266(N)
Gelman, H. Generalized conversion of electromagnetic units, measures, and equations—291
Gerhard, Sherman L. Sonic-boom formation demonstrated by surface waves on water—719(A)
Gerrard, Anthony. An experimental method of determining the matrix elements of an optical system—67(N)
Gerstenfeld, F. (see Nussbaum, R. H.)—45
Gibbons, J. H. Neutron capture and stellar nucleosynthesis: quantifying the qualitative—182(A)
Gilbey, D. M. and F. O. Goodman. Quantum theory of the forced harmonic oscillator—143
Gilinsky, Victor and Dennis Holliday. Interaction energy of a dielectric in an electrostatic field—1134
Ging, J. L. Equations of motion and coordinate covariance in general relativity—63
Gingrich, Newell S. Membership in AAPT—373(TO)
Givens, M. Parker and William L. Goffe. Application of the Cornu spiral to the semitransparent half-plane—248
Glassman, D. (see Robinson, B. L.)—183(A)
Godwin, Robert P. (see Clem, John R.)—460
Goe, George. An *anschaulichkeitsbeweis* for special relativity—780
—— An *anschaulichkeitsbeweis* for special relativity (erratum)—1202
Goedecke, G. H. Undetermined multiplier treatments of the Lagrange problem—571
Goffe, William L. (see Givens, M. Parker)—248
Gold, Louis. Equivalent vector Lorentz transformation—930
Goldberg, Stanley. Early response to the theory of relativity in America—186(A)
Goodman, F. O. (see Gilbey, D. M.)—143
Gould, Mauri (see White, Harvey E.)—660
Graedel, Thomas E. (see Warren, Kenneth Lyle)—1056
Gray, David. Note on the Fourier series—1063(N)
Green, Alex E. S. A physical description of the nucleon–nucleon force—723(A)
Greenberg, David F. Accidental degeneracy—1101
Guest, P. G. Gyroscopic nutation—188(A)
Gwinn, Joel A. and William L. Kruer. Interaction of 3-cm microwaves with a mercury plasma—286(A)

Hadley, Henry G. Predictions of the gravitational bending of light before Einstein—162(N)
Haig, Frank B. An elementary relaxation calculation—285(A)
Hall, George L. and Donald O. Christy. Calculation of order parameters of perfectly ordered Cu_3Au and CuZn, an exercise in number theory—526
Hall, William Davis. Atomic polarizability—286(TO)
Haller, Charles, Richard Franklin, and Richard Mihm. A laboratory course in physical science—729(A)
Hamtil, Charles N. Conservation of angular momentum in relativistic dynamics—723(A)
Hane, Michael (see Adler, Alan D.)—189
Haneman, D. Visual observations of low-energy electron beams—289
Hanson, Roger J. and Beryl E. Clotfelter. Apparatus review: evaluation of commercial apparatus for measuring h/e—75
Harris, Edward G. Plasma instabilities and the problem of controlled fusion—182(A)
Hartman, R. L. Bernoulli's law demonstrator—445(L)
Hartman, Roger D. Use of computers in an undergraduate light and optics laboratory—793
Havas, Peter. A note on Hertz's "derivation" of Maxwell's equations—667
—— Are zero rest mass particles necessarily stable?—753
Hawkins, Bruce and Michael Rice. Models and physical reality: a new approach to general physics for the liberal arts student—185(A)
—— **and Michael Rice.** A mechanical double slit demonstration—170(L)
—— (see Rice, Michael)—185(A)
Haworth, F. E. (see Nagel, Michael)—553
—— (see Nagel, Michael)—559
Hegarty, John C. Student experiment on Coriolis force—157
Helmer, John C. The intensity of electron beams—222
Hendel, Alfred. Some new questions relating to cosmic rays—286(TO)
Henry, E. Michael (see Veigele, William J.)—1116
Henshaw, Clement L. and James N. Lloyd. Two modifications of the Welch central force apparatus—981(N)
Hermann, U. O. (see Weinberg, J. W.)—184(A)
Hewett, C. A. and M. C. Martin. A physics curriculum for liberal arts colleges—820(N)
Hiddleston, Hoyt E. Direct nuclear interactions to low-lying levels of B^9 using the B^{10} (He^3, α) reaction—373(TO)
Hilton, Wallace A. and John L. Philpot. Independent study and undergraduate research projects—373(TO)
Hinrichs, C. H. Review of *The physics of ice*—827
Hobson, Arthur. Irreversibility in simple systems—411
Hoffmann, Paul O. Mathematical physics for high-school teachers—185(A)
Holden, Alan (see Davisson, Richard)—724
Holland, Lawrence Rozier. Review of *Modern physics*—1210
Holliday, Dennis (see Gilinsky, Victor)—1134
Holonyak, Nick, Jr. (see Sirkis, Murray D.)—943
—— **and Murray D. Sirkis.** On the behavior of quasi-Fermi levels in a nonequilibrium semiconductor—619(N)
Holroyd, Louis V. Discussion of a proposal submitted to the National Science Foundation upon the training of high-school physics teachers in Missouri—374(TO)
—— Report on the conference of the Harvard project physics—374(TO)
Holzman, J. Lecture demonstration open house—729(A)
Hood, James D. The electric shock tube experiment—127
Hooper, William. Weight and mass—364(L)
Horton, George W. Experiments with physical pendulums—187(A)
Houston, W. V. Are electrons real?—351
Howe, Carl E. Strain pattern in the interior of piezoelectrically oscillating quartz plates—182(A)
Huggins, W. H. Computer-generator films—722(A)
Hughes, Harold K. The 1- and 2-dimensional hydrogen atom in quantum mechanics—723(A)
Hunter, J. H., Jr. (see Phelps, F. M., III)—533
Huntington, H. B. and G. L. Salinger. A film to aid in the teaching of the wave vector concept—184(A)
Hupert, Julius J. and Gary Ott. Electromagnetic analog of the quantum-mechanical tunnel effect—260

Innes, K. Keith. Spectroscopy and thermochemistry: Electronic energy relationships between molecules and their fragments—306
Iona, Mario. Stopping potential for photoelectrons—707(L)
Ivory, John E. (see Mathews, John H.)—186(A)

Jackson, Daphne F. (see Elton, L. R. B.)—1036
Jammer, Max (see Seeger, Raymond J.)—72(L)
Jefimenko, Oleg. Two free-fall demonstrations—720(A)
Jones, Ernest A. (see Lawson, James R.)—284
Jones, Leonard C. (see Cronin, James L., Jr.)—719
Joseph, R. I. Comments on "External dc field of a long solenoid"—817(N)
Joshi, S. S. Inverted pendulum with damping—533(N)
Jossem, E. Leonard. Dialogues concerning some old sciences—the Seattle interdisciplinary conference—867
—— Dialogues concerning some old sciences—the Seattle interdisciplinary conference—725(A)

Kachhava, C. M. (see Saxena, S. C.)—704
Kahn, Peter B. Review of *Advanced quantum theory*—831
—— Review of *Complex variable methods in science and technology*—373
—— Review of *The Fourier transform and its application*—712
—— Review of *Relativistic quantum fields*—367
Kalantar, A. H. Carnot cycle diagrams—979
Kallmann, Hartmut P. The advent of quantum theory—a personal report—723(TO)
Kankeleit, E. Simple Mössbauer spectrometer using x-ray films—778
Karplus, R. Conceptual structure and physics teaching—733(A)
Kasper, Joseph (see Smith, Paul A.)—726
Katz, Robert. Simulated radioactivity—720(A)
—— **and J. J. Butts.** Simulated radioactivity—986(N)
Kaylor, Hoyt M. Apparatus review: an evaluation of the Barnes Engineering Company model ES-100 educational spectrometer—74
Kendall, B. R. F. and H. M. Luther. Apparatus for teaching and research in electron physics—580
Kennedy, F. J., Jr., and E. H. Kerner. Addendum to "Note on the inequivalence of classical and quantum Hamiltonians"—271(L)
Kerner, E. H. (see Kennedy, F. J., Jr.)—271
King, Allen L. Computer program for "Application of the Cornu spiral to the semitransparent half plane"—1067(L)
—— Review of *High energy beam optics*—1071
—— Review of *The human eye and the sun*—1073
—— Review of *Mathematical theory of optics*—80
—— Review of *Optical physics*—993
—— Review of *A system of optical design*—79
King, D. T. Experiments with fast pions in emulsion—182(A)
King, John G. On physics project laboratories—1058
Kirmser, Philip G. An example of the need for adequate references—701(N)
Kittel, Charles. Curriculum development at the college level—721(TO)
Klein, James J. Eigenfunctions of the hydrogen atom in momentum space—1039
Kobe, Donald H. Second quantization as a graded Hilbert space representation—1150
Koenig, Albert and B. J. Weigman. Theoretical analysis of a two-dimensional scattering experiment—719(A)
Kohler, Robert H. Graphical aids in the teaching of special relativity—1128
Kolb, Kemp Bennett. A corpuscular model for light—729(A)
—— Mass and energy—705(N)
—— Review of *Curiosities of light rays and light waves*—714
Kolenkow, Robert. Electronic spark-timer—536(N)
Koozekanani, S., M. McCoy, and D. Rensch. Inexpensive CO_2 molecular gas laser—989(N)
Krapp, Charles and B. J. Weigman. A two-dimensional scattering experiment—719(A)
Kraus, Alfred A., Jr. On elementary boundary value problems—436
Kruer, William L. (see Gwinn, Joel A.)—286(A)
Kshatriya, A. and W. Thum. Writing laboratory reports—539(L)
Kurşunoğlu, Behram. Diffusion as a problem of statistical path—1043

Lambe, E. D. Unfinished business—725(A)
Landé, Alfred. Quantum fact and fiction. II—1160
Laser Workshop Conference. Laser experiments and apparatus for teaching purposes—98
Laslett, L. Jackson. Trajectory for minimum transit time through the earth—702(N)
Lawson, J. D. Guided surface waves and the radiation from charges moving in curved paths—601
Lawson, James R., Nelson Fuson, and Ernest A. Jones. Latin American Fisk infrared spectroscopy institute—284(A)
Layman, John W. High-school teacher research participation program at Iowa State University—374(TO)
—— Presentation of resolution on teacher certification—373(TO)
Leitner, Alfred. An introduction to superconductivity: excerpts from a new film—722(A)
—— **and G. L. Salinger.** Demonstrations and experiments at liquid-helium temperatures—183(A)
—— (see Salinger, Gerhard L.)—692
Lengyel, Bela A. Evolution of masers and lasers—903
Levitas, Alfred. Equations of state and the second law of thermodynamics—767
Lévy-Leblond, Jean-Marc and Peter Thurnauer. A gravitational paradox—1110
Lindsay, Richard H. (see Veit, J. J.)—723
Llewellyn, R. A. (see Meiners, H. F.)—183(A)
—— The Mössbauer effect—a mechanical analogy—183(A)
Lloyd, James N. (see Henshaw, Clement L.)—981(N)
Losee, John P. Drake, Galileo, and the law of inertia—430
Lowe, I. J. and D. Whitson. Simple pulsed nuclear magnetic resonance spectrometer—335
Lu, Pau-Chang. On Whaples's proof of existence of temperature—401
Lufburrow, Robert A. Review of *How to find out about physics*—711
—— Review of *The velocity of light*—1204
Luther, H. M. (see Kendall, B. R. F.)—580
Lysiak, R. J. (see Morgan, Joseph)—433

Major, J. K. (see Weinberg, J. W.)—184(A)
Major, Schwab S., Jr. Review of *Electricity and magnetism*—828
Mallett, Russell L. Comments on "Through the earth in forty minutes"—702(N)
Martin, D. C. A modern physics laboratory course—286(TO)
—— Recent meetings: Appalachian section of the AAPT—285
—— Report on the Harvard project physics course for high-school students—286(TO)
Martin, D. S. Structuring laboratory work in physics—729(A)
Martin, M. C. (see Hewett, C. A.)—820(N)
Masket, A. V. Comments on an analytic expression for angular velocity—983(N)
—— A note on relativity and the Lorentz transformation—270(N)
—— Polar vectors and axial vectors in real 3-space—723(A)
—— Polar vectors and axial vectors in real 3-space—164(N)
Mason, E. A. Estimate of molecular sizes and Avogadro's number from surface tension—1193(N)
—— Review of *Atomic and space physics*—1071
—— Review of *Documents on modern physics—John Gamble Kirkwood Collected Works. Vol. 1, Quantum statistics and cooperative phenomena; Vol. 2, Dielectrics-intermolecular forces-optical rotation*—1073
—— Review of *Kinetic theory. Vol. 1, The nature of gases and heat*—1205
Mathews, John H. and John E. Ivory. Intuition regarding the mechanism of conduction in battery sustained steady current—186(A)
Maude, A. D. and David H. Trevena. Approximations in the treatment of an assembly of localized systems—539(N)
Mawardi, O. K. The use of Langmuir probes for low-density plasma diagnostics—112
Maxwell, Howard N. Some comments on NSF secondary summer institutes in physics—726(A)
McCoy, M. (see Koozekanani, S.)—989(N)
McKay, Myron S. "Oersted certificates" for distinguished physics teachers: a proposal—284(A)
McKnight, John L. G. S. Ohm's experimental basis for the law of current electricity—721(A)
McNeil, Edward B. Simple momentum experiment with dry-ice pucks—719(A)

McQuarrie, Donald A. Review of *Differential equations of applied mathematics*—1205
—— Review of *Mathematical functions*—177
Meiners, H. F. and R. A. Llewellyn. Measurement of the relativistic transverse Doppler effect—183(A)
—— (see Muldawer, L.)—184(A)
Meyer, James W. Review of *Solar radio astronomy*—829
Meyerand, Russell C., Jr., and Robert H. Bullis. Cesium diode thermionic converter for laboratory experiments—122
Michels, Walter C. The graduate record examination advanced physics test as a predictor of performance—862
—— Momentum books—726(A)
—— Momentum books—890
—— **and W. Paul Ganley.** Report of the editors for the year 1965—452
Mihm, Richard. (see Haller, Charles)—729
Miller, D. P. (see Miller, J. E.)—172
Miller, Don W. and G. Wayne Caudill. Driving mechanism for a Foucault pendulum—615(N)
Miller, Franklin, Jr. Kepler's 3rd law and the mass of the moon—53
Miller, J. E., A. R. Reed, and D. P. Miller. Photoelectric charging of an electroscope—172(L)
Minkler, M. W. Optical ray tracing replacing reciprocal equations by linear equations—732(A)
Mirman, Ronald. Is it mass or is it energy?—272(L)
—— Magnetic monopoles and invariance—70(N)
—— The transformation properties of the electromagnetic field—427
Mitchell, F. H. and Stanley T. Nolan. A simple experiment on the concept of distribution function—284(A)
—— (see Nolan, Stanley T.)—284
Mitchell, J. W. (see Gaggioli, Richard A.)—549
Mitvalsky, V. Special relativity without the postulate of constancy of light—825(N)
Mooney, C. L. and Bertram L. Barlow. Elementary physics of plane mirror interferometry—732(A)
Moore, R. D. (see Block, B.)—159
More, Richard M. Čerenkov radiation—243
Morgan, Joseph and R. J. Lysiak. Studies of laser light scattered by a moving surface—433
Morrow, L. (see Clem, P. L., Jr.)—283
Morrow, Richard A. Review of *Meson and baryon spectroscopy*—710
Mott, David L. Another derivation of Euler's equations of rigid-body rotation—1197(N)
—— Torque on a rigid body in circular orbit—562
Muldawer, L. and H. F. Meiners. New Doppler shift experiments—184(A)
Mullaney, Paul F. Simple demonstration of photoconductivity in CdS—812
Mullin, Albert A. Review of *Dynamical theory of groups and fields*—1209
—— Review of *Mathematical methods in physics*—79
—— Review of *Mathematics of choice or how to count without counting*—543
—— Review of *Second Coral Gables conference on symmetry principles at high energy*—278
Mundy, J. L. and V. L. Newhouse. Thermodynamical systems involving magnetic fields—1195(N)
Musher, Jeremy I. Comment on some theorems of quantum chemistry—267(N)

Nadeau, Gerard. Comment on Chen's note on the magnetic pole—70(N)
Nagel, Michael and F. E. Haworth. Advanced laboratory experiments on optical pumping of rubidium atoms—part I: magnetic resonance—553
—— **and F. E. Haworth.** Advanced laboratory experiments on optical pumping of rubidium atoms—part II: free precession—559
Nalson, Wm. Contrasting lessons in mechanics—an evaluation of objectives—729(A)
Neilsen, I. R. Premedical physics course modifications suggested by current trends in medical education—721(A)
—— Method for using conventional x-y plotter in large classrooms—361(N)
Newby, Neal D., Jr. More monkey business—625(L)
Newhouse, V. L. (see Mundy, J. L.)—1195(N)
Nielsen, A. and J. Olsen. Formal analogy between Compton scattering and Doppler effect—621(N)
Nolan, Stanley T. and F. H. Mitchell. A simple experiment on the concept of probability—284(A)
—— (see Mitchell, F. H.)—284
Nussbaum, R. H., F. Gerstenfeld, and J. K. Richardson. Precision high-resolution Mössbauer spectrometer—45
Nyborg, Per. Kinematics of scattering and decay processes—932

Olsen, J. (see Nielsen, A.)—621
Omar, M. A. Dynamic elastic constants—1179
Ott, Gary (see Hupert, Julius J.)—260
Ouseph, P. J. (see Waheed, A.)—285(A)
—— **and A. Waheed.** A simple electromechanical drive for Mössbauer experiments—990(L)

Page, Thornton Leigh. Review of *Electrodynamics*—712
—— Review of *Flight to the stars*—715
—— Review of *Galaxies, nuclei and quasars*—710
—— Review of *General relativity and cosmology*—542
—— Review of *Photometry*—629
—— Review of *Space physics with artificial satellites*—544
—— Review of *Theory of energy and mass transfer*—713
—— Review of *Theory of relativity and a-priori knowledge*—714
Pake, George E. Outlook in physics for the next 5 years—373(TO)
Palfrey, T. R., Jr. Computer assisted learning-conference afterthoughts—724(A)
Palmer, R. Ronald. Review of *Fundamentals of college physics*—991
Palmieri, J. N. Conservation solutions—272(L)
—— (see Whiteside, H.)—1005
Paris, D. T. Maxwell's equations and determinate systems—618(N)
Park, David. Review of *Classical charged particles*—1206
—— Review of *Lectures in theoretical physics, 1964, Vols. VII a, b, and c*—1204
—— Review of *Science citation index 1964*—993
Park, John T. An experimental study of the energy-loss processes of fast ions passing through gases—373(TO)
Parker, Vincent E. Educational assistance provided by the U. S. Atomic Energy Commission—319
Partridge, Robert B. (see Carver, Thomas R.)—339
Penfield, Robert H. More on the arrow of time—422
Pescetti, D. and C. Pontiggia. A simple apparatus to demonstrate the conservation of areal velocity in a field of central forces—1063(N)
Peskett, J. M. and F. A. Underwood. Proving the Bragg law—1067(L)
Phelps, F. M., III. Airy points of a meter bar—419
—— **and J. H. Hunter, Jr.** Reply to Joshi's comments on a damping term in the equations of motion of the inverted pendulum—533(N)
Phillips, J. P. Review of *Kepler's conversation with Galileo's sidereal messenger* translated by Edward Rosen—713
—— Review of *Michael Faraday*—175
Phillips, Melba. American association of physics teachers—organization table for 1966—733
—— Proceedings of the AAPT summer meeting at the University of Tennessee—180
—— Proceedings of the AAPT thirty-fifth annual meeting—718
Philpot, John L. (see Hilton, Wallace A.)—373(TO)
Pierce, Donald F. Bright image amplification radiography—286(TO)
Pierce, W. M. Report on AAPT council meeting—286(TO)
Pike, Julian M. Make your own sound teaching films in color for $2.69—286(TO)
Podolsky, Boris. On conservation of angular momentum—42
—— **and H. H. Denman.** A macroscopic approach to Ohm's law—814
Pohrte, Theodore W. Learner-centered general physics courses—1069(L)
Pomeranz, Kalman B. The relativistic rocket—565

Pontiggia, C. (see Pescetti, D.)—1063(N)
Porter, L. E. Review of *Cosmic radiation and high energy interactions*—547
—— Review of *Cosmic rays*—373
—— Review of *The questioners: physicists and the quantum theory*—993
—— Review of *Symmetries in elementary particle physics*—1208
Portis, Alan M. Electrons, photons, and students—1087
Powell, Howard. Demonstrations with an electronic peg board—286(A)
Power, Edwin A. Zero-point energy and the Lamb shift—516
Powers, Glenn F. A portable anechoic chamber for 16-mm sound equipment—706(L)
Prather, John L. Review of *Structure of atomic nuclei*—371
Proffitt, M. H. and W. C. Gardiner, Jr. Nuclear magnetic resonance detector for demonstrations on magnetic field measurements—163(N)
Puri, S. P. Noninteraction between static electric and magnetic fields—162(N)
Putnam, A. A. (see Evans, R. E.)—360(N)
Putnam, Hilary. Time and physical geometry—727(A)
Pytte, Agnar. Review of *Whistlers and related ionospheric phenomena*—81

Rabinoff, Carter V. and Irving Bockelheide. Graphing self-absorption curves with ordinary gamma-ray absorption data—130
Radin, Shelden H. Review of *Foundations of plasma physics*—280
Rainwater, James. On "Maxwell's ovals and the refraction of light"—1200(L)
Ramanadham, M. Surface vibrations of liquids—538(N)
Ramanathan, K. G. The surface energy of soap bubbles—169(L)
Rawls, W. S. and H. G. Voss. A versatile, inexpensive neutron howitzer—1182
Ray, John R. Nonholonomic constraints—406
—— Nonholonomic constraints (erratum)—1202
Rayburn, Louis A. Participation by college and university faculty and students in research activities at AEC laboratories—181(A)
Rector, D. and S. Segal. Super-regenerative gaussmeters—704(N)
Redding, J. L. Velocity of sound in air—626(L)
Reed, A. R. (see Miller, J. E.)—172
Reid, Walter P. Temperature in a sector of an annulus—1196(N)
Rensch, D. (see Koozekanani, S.)—989(N)
Resnick, I. Hyperfine and Zeeman effect studies with a Fabry–Perot etalon and a Lummer–Gehrcke plate—731(A)
Resnick, R. (see Eppenstein, W.)—183(A)
Rexroad, H. N. A Brown–Twiss interferometer experiment at microwave frequency—285(A)
Rhee, John W. Particle in a potential box and adiabatic expansion of wall—723(A)
—— Simple derivation of satellite paradox—615(N)
—— Time dilation and twin problem in general relativity—724(A)
Rice, Michael and Bruce Hawkins. Models and physical reality: new laboratory experiments—185(A)
—— (see Hawkins, Bruce)—185(A)
—— (see Hawkins, W. Bruce)—170(L)
Rice, Robert A. (see White, Harvey E.)—660
Richardson, J. K. (see Nussbaum, R. H.)—45
Rigney, Carl J. and Roy H. Biser. Note on a famous derivation of $E = mc^2$—623(N)
Rinard, Phillip M. On nutation—365(L)
Rindler, W. Kruskal space and the uniformly accelerated frame—1174
—— What are spinors?—937
Roberts, Edwin M. A formulation of quantum mechanical perturbation theory—895
Robinson, B. L. and D. Glassman. Laboratory experiment on Fourier synthesis—183(A)
—— (see Weinberg, J. W.)—184(A)
Rogers, Eric M. Demonstration: Crowding of molecules in air—720(A)
Rogers, W. A. Some teaching techniques aimed at consolidation of the student's acquired knowledge—727(A)
Rohrlich, F. On relativistic theories—987(N)
Roll, Peter G. "New physics" and the Minnesota conference on new materials for introductory physics courses for science and engineering majors, 6–8 May 1965—872
Romer, Alfred. Physics problems and reality—626(L)
Romer, I. C., Jr. (see El-Hakeem, A. S.)—1197(N)
—— Tube effects on sound propagation through real fluids—192
Romer, R. H. Angular momentum of static electromagnetic fields—772
Roos, P. (see Block, B.)—159
Rosen, Edward. Kepler's *Harmonics* and his concept of inertia—610
Rosen, Gerald. To scatter a photon by a photon—788
Ruby, Lawrence. Applications of nuclear energy: a new course for the humanities—332
—— Demonstration of the buildup and decay of radioactivity—246
Rupaal, Ajit S. Interpretation of Fresnel's equations for isotropic dielectrics—442
Rusk, W. R. Freshman physics for nonscience majors at the University of Tennessee—188(A)

Sachs, A. M. Development of some new experiments in nuclear and particle physics (nuclear workshop conference report)—9
Sachs, Bernhard A. High-school physics: Green teachers, black boxes, red tape—729(A)
Sachs, R. K. Time in relativity and cosmology—728(A)
Salinger, G. L. (see Huntington, H. B.)—184(A)
—— (see Leitner, A.)—183(A)
—— **and A. Leitner.** Demonstrations and experiments at liquid-helium temperatures—692
Sands, Matthew. Activities of the commission on college physics—724(A)
—— The challenge—833
Saxena, S. C. and C. M. Kachhava. A note on the Born's continuum theory of solids—704(N)
Scarfone, Leonard M. Lehmann–Symanzik–Zimmerman formalism in the one-boson Lee model—254
Scheinler, H. C. A course in dimensional analysis—283(A)
Schenck, Hilbert, Jr. Overhead projection studies of error propagation—726(A)
Schiff, L. I. Some thoughts on classroom teaching (Oersted Medal address)—454
Schmitt, H. J. Electron-acoustic wave resonances—120
Schultz, S. Thought stimulator on angular momentum—1201(L)
Schwarz, W. M. Review of *Electric and magnetic fields*—1208
Scott, F. R. Review of *A textbook of magnetohydrodynamics*—1204
Sears, Francis W. A modified form of Carathéodory's second axiom—665
—— A modified form of Carathéodory's second axiom—730(A)
—— A tempest in the relativistic teapot—363(L)
—— Three-dimensional diagram of gyroscopic precession—365(L)
Seeger, Raymond J. and Max Jammer. Old doctrines and new sciences—72(L)
—— Review of *Concepts in physical science*—1206
—— Review of *Electrons, atoms, metals and alloys*—177
—— Review of *The flying trapeze: three crises for physicists*—173
—— Review of *Incompressible fluid dynamics* and *Introduction to fluid dynamics*—173
—— Review of *Introduction to general relativity*—274
—— Review of *Partial differential equations of mathematical physics*—80
—— Review of *Philosophical aspects of modern science*—78
—— Review of *Relativity and common sense: A new approach to Einstein*—372
—— Review of *The science of science*—176
—— Review of *Special theory of relativity*—273
—— Review of *The theoretical significance of experimental relativity*—369
Segel, S. (see Rector, D.)—704(N)
—— Zeeman quadrupole resonance in powders—286(TO)
Sen, P. Origin of SU_3 symmetry in elementary particles—690
Serbin, Hyman. Mathematical education for scientists and engineers—1138
Seykora, E. J. and J. C. Theys. Analog crystals and their dielectric behavior—823(N)
Shaw, Wm. Lab-less experiments for nonscience majors—732(A)
Shirer, Donald L. The case against the exponential—186(A)
Shonle, John I. Comment on "Analytic expression for angular velocity"—818(N)
—— Correction to resource letter CM-1—273

Shore, Edward A. The introductory physical science program of Educational Services, Inc.—730(A)
Shrivastava, K. N. Comment on Riggsby's letter: Oooops! what you said—627(L)
Sickafus, Edward N. Stacking-fault model fcc–hcp unit-cell transformation—1064(N)
Siemon, Richard E. and Dale R. Snider. Elastic collisions as Lorentz transformations with application to Compton scattering—614(N)
Silbar, R. R. How to make the world go 'round—705(L)
Silitto, R. M. The angular distribution of the acoustic radiation from a tuning fork—639
Singerman, J. Some color demonstrations—729(A)
Sirkis, Murray D. (see Holonyak, Nick, Jr.)—619
—— **and Nick Holonyak, Jr.** Currents induced by moving charges—943
Skove, M. J. and E. P. Stillwell. Two apparatuses—(a) Cheap 2°K experiment (b) Graphic Lissajous figures—283(A)
Slinn, W. G. N. Multiple transforms for mathematical-physics courses—93
Smith, Paul A. Teaching Dirac notation and relations among systems of units—677
—— **and Joseph Kasper.** Undergraduate computer use—726(A)
Snider, Dale R. (see Siemon, Richard E.)—614
Snyder, A. W. (see Brick, D. B.)—818(N)
Soules, Jack A. A first course in physics which emphasizes independent study and laboratory experience—724(A)
Sparberg, Esther B. Misinterpretation of theories of light—377
Spiegel, F. X. and B. J. Weigman. On the measurement of the coefficient of restitution of the "super-ball"—719(A)
Sprawls, Perry, Jr. Apparatus for magnetic circuit experiments—623(N)
Steere, Robin C. Theoretical and experimental determination of the two-dimensional potential field for a right-angled bend—57
Stephenson, Reginald J. The development of vector analysis from quaternions—194
Stewart, A. T. Two-circle roller—166(N)
Stewart, John W. A new bachelor of science physics curriculum—185(A)
Stillwell, E. P. (see Skove, M. J.)—283(A)
Stocker, Carl F. A thorough test program to aid teaching—727(A)
Strassenburg, A. A. Physicists and teachers—725(A)
—— Physicists and teachers—885
Streib, John F. Laws of reflection and refraction: photon flux—1197(N)
—— Maxwell's equations and determinate systems—617(N)
Sturrock, P. A. Report of panel to discuss teaching of plasma physics in American universities—104
Sussman, Milton H. Maxwell's ovals and the refraction of light—416
—— On "Maxwell's ovals and the refraction of light"—1200(L)
Sussman, M. V. Visualizing statistical thermodynamics: the Boltzmann distribution model—1143
Swan, F. W. Review of *Science and human values*—369
Swartz, Clifford E. Elementary school science bases on quantitative analysis—732(A)
—— Resource letter SAP-1 on subatomic particles—1079

Tang, K. T. A note on potential scattering—152
Tang, Lum-Han. Effects of lattice vibrations on γ–γ angular correlations—286(TO)
Taylor, Max R. Review of *Advanced methods of crystallography*—175
ten Bosch, J. J. and M. J. A. de Voight. Interferometric study of the modes of a visible gas laser with a Michelson interferometer—479
ter Haar, D. Simple derivation of the Bloch equation—1164
Tessman, Jack R. Maxwell—out of Newton, Coulomb, and Einstein—1048
Theys, J. C. (see Seykora, G. J.)—823(N)
Thoburn, W. C. Dynamic consequences of intermolecular attraction in gases—136
—— How do we explain the effects of intermolecular attractions in fluids to undergraduates?—730(A)
—— The role of intermolecular attractions in liquids and gases—132
Thomas, Garland L. Recent meeting: Fall meeting of Missouri section of AAPT—373
Thompson, William I., III. Peek-a-boo cards used for a personal document file—822(N)
Thomsen, John S. What's new in x-ray spectroscopy?—731(A)
Thomson, J. O. The Mössbauer effect for gold 197 in ferromagnetic alloys—186(A)
Thumm, W. (see Kshatriya, A.)—539
Thurnauer, Peter (see Lévy-Leblond, Jean-Marc)—1110
Timmerman, Naomi M. Some remarks on the quality of high-school physics—730(A)
Tobin, Marvin C. The relation between the number of complexions in Maxwell–Boltzmann and in Fermi–Dirac statistics—1064(N)
Tracy, Philip T. (see Veigele, William J.)—1116
Trevena, D. H. University physics in a developing country—170(L)
—— (see Maude, A. D.)—539(N)
Trigg, George L. Laws of motion—71(L)
—— Laws of motion. II—988(N)
Turnbull, D. T. A note on the Doppler effect—359(N)
Turner, J. E. (see Fox, Kenneth)—606
Turner, L. R. (see Bragg, Lincoln E.)—963
Turner, Thomas J. A study of the simple harmonic oscillator by means of *F* center absorption—181(A)
—— Study of the simple harmonic oscillator by means of F-center absorption—301

Underwood, F. A. (see Peskett, J. M.)—1067(L)
Unz, H. Direct integration of time-dependent Maxwell equations—1015

Varney, R. N. (see Fisher, L. H.)—228
Veigele, William J., P. T. Tracy, and E. M. Henry. Compton effect and electron binding—1116
Veit, J. J. and Richard H. Lindsay. The use of a neutron generator in an undergraduate nuclear laboratory—723(A)
Venezian, Giulio. The terrestrial brachistochrone—701(N)
Vollmer, James. Physics curricula and industrial R&D or the neglected 42%—408
von Roos, Oldwig. A note on the derivation of boundary conditions in electromagnetic theory—535(N)
Voss, H. G. (see Rawls, W. S.)—1182

Waheed, A. and P. J. Ouseph. Low-velocity Mössbauer drive—285(A)
—— (see Ouseph, P. J.)—990(L)
Wall, C. N. Apparatus review: the Ferranti guard ring diode. Magnetron determination of *e/m*—73
Walther, Adriaan. Classical theory of optical detection—521
Wangsness, Roald K. Review of *Lectures on matter and equilibrium*—1207
Warburton, F. W. On understanding the basis of electrodynamics—721(A)
Warren, Kenneth Lyle and Thomas E. Graedel. Spectrographic analysis with a small telescope and transmission grating—1056
Weber, Robert L. Review of *Scales and weights: a historical outline*—371
—— Review of *The teaching of physics*—545
Weigman, B. J. (see Koenig, Albert)—719
—— (see Krapp, Charles)—719
—— (see Spiegel, F. X.)—719
Weinberg, J. W., B. L. Robinson, J. K. Major, and U. O. Herrmann. Mössbauer experiment on the relativistic time dilatation—184(A)
Weinberg, Steven. The role of time in quantum mechanics—728(A)
Weiner, Charles. Joseph Henry and the relations between teaching and research—1093
Weiner, T. The extragalactic red shifts and photon degradation by spin reversal—188(A)
Weinstock, Harold. Statistical and thermodynamic aspects of magnetic cooling—731(A)
Weissman, Eric. The water flask with unequal holes—1126
Weltin, Hans. Accelerometer—825(L)
—— Mechanical paradox—172(L)

—— Experiment in rigid body dynamics—764
—— Hysteresis loop—960
—— (see White, Harvey E.)—660
Welton, T. A. The imaging of atoms with the electron microscope—182(A)
Whippman, M. Orbital angular momentum in quantum mechanics—656
White, D. Hywel. Review of *The physics of elementary particles*—712
—— Review of *Weak interactions of elementary particles*—714
White, Harvey E., Hans Weltin, Mauri Gould, and Robert A. Rice. Quantitative demonstration exhibits and a new low-cost physics laboratory—660
White, Locke, Jr. Demonstration analog of a critical-state phenomenon—68(N)
Whiteside, H., J. N. Palmieri, and B. A. Burnstein. An experiment in elementary particle physics for the elementary laboratory—1005
Whitson, D. (see Lowe, I. J.)—335
Whitten, R. C. Review of *Atomic diplomacy: Hiroshima and Potsdam*—544
—— Review of *Encounter with the future*—828
—— Review of *New foundations of quantum mechanics*—1203
Wilkins, Homer C. An integrated electricity–electronics course—186(A)
Winch, Ralph P. Proceedings of the AAPT—634(P)
Wocholski, L. B. Recent meetings: Michigan section of AAPT—286
Wolfe, Otis K., Jr. Recent meetings: April meeting of the Kentucky section—286
—— Recent meetings: Spring meeting of the Kentucky section—285
Wood, Elizabeth A. PSNS: A college course in physical science for non-science majors—732(A)
—— PSNS project at RPI—891
Wrigley, V. K. Mechanics laboratory for home study—732(A)
Wunderlich, Francis. Determination of "*g*" through circular motion—1199(L)

Youngner, Philip. Progress report on the pre-college physics program of the American Institute of Physics—726(A)

Zemansky, Mark W. Kelvin and Carathéodory—A reconciliation—731(A)
—— Kelvin and Carathéodory—A reconciliation—914
Zink, J. W. The electromagnetic mass of the classical electron—211

AMERICAN JOURNAL OF PHYSICS VOLUME 34, NUMBER 12 DECEMBER 1966

Analytic Subject Index to Volume 34

In this index are listed titles of articles and notes, together with the names of their authors. Classification is based upon analyses of contents of the articles, rather than upon the titles alone. The symbol (A) designates an abstract of a paper read at a meeting, (L) designates a Letter to the Editor. The symbol (TO) designates title of a paper read at a meeting, and (N) designates a contribution to Notes and Discussion. To facilitate reference to any desired subject, this index is divided into sections arranged alphabetically. The titles of these sections are as follows:

American Association of Physics Teachers
Apparatus, demonstration
Apparatus, general
Apparatus, laboratory
Astronomy and astrophysics
Atmospheric physics and meteorology
Atomic physics
Audiovisual materials and methods
Biophysics
Books
Chemical physics
Commission on College Physics
Computers
Conferences and institutes
Cosmic rays
Courses
Demonstrations
Education: physics and science
Electricity and magnetism
Electronics
Experiments
Films
Fluids: liquids and gases
General physics: educational aspects
General physics: instructional techniques
Geophysics
Heat and thermodynamics
High-energy physics
History and biography
Laboratory arts and techniques
Laboratory: organization and operation
Light
Low-temperature physics
Mathematics
Mechanics, classical
Mechanics, quantum
Mechanics, statistical
Modern physics
Nuclear physics
Optics (see Light)
Particles, elementary
Philosophy of science
Physics in foreign lands
Plasma physics
Properties of matter
Quantum electronics
Relativity and gravitation
Reports, announcements, and news
Research
Resource letters
Rockets and satellites
Secondary school physics
Social and economic aspects of science
Solid-state physics
Sound
Space physics
Teacher training
Testing: theory and techniques
Textbooks (see Books)
Units, dimensions, and terminology
Waves
X rays

AAPT

AAPT organization table for 1966, Melba Phillips—733
An historical note and summary regarding resource letters, A. B. Arons—540
Proceedings of the AAPT, Ralph P. Winch—634
Proceedings of the AAPT summer meeting at the University of Tennessee, Melba Phillips—180
Proceedings of the AAPT thirty-fifth annual meeting, Melba Phillips—718
Recent meetings: Appalachian section of the AAPT, Donald C. Martin—285
Recent meetings: April meeting of the Kentucky section, Otis K. Wolfe, Jr.—286
Recent meetings: Michigan section of AAPT, L. B. Wocholski—286
Recent meetings: Spring meeting of the Kentucky section, Otis K. Wolfe, Jr.—285
Report of the editor for the year 1965, Walter C. Michels and W. Paul Ganley—452
Some thoughts on classroom teaching (Oersted medal address), L. I. Schiff—454

Apparatus, demonstration

Laser experiments and apparatus for teaching purposes, Laser Workshop Conference—98
Method for using conventional x–y plotter in large classrooms, I. R. Neilsen—361(N)

Rijke tube apparatus, R. E. Evans and A. A. Putnam—360(N)
Rotary-motion demonstration apparatus, Richard E. Garrett—283(A)

Apparatus, general

Apparatus for teaching and research in electron physics, B. R. F. Kendall and H. M. Luther—580
Electromagnetic analog of the quantum-mechanical tunnel effect, Julius J. Hupert and Gary Ott—260
Hysteresis loop, Hans Weltin—960
The Rensselaer workshop for apparatus development, W. Eppenstein and R. Resnick—183(A)

Apparatus, laboratory

Accelerometer, Hans Weltin—825(L)
Apparatus for magnetic circuit experiments, Perry Sprawls, Jr.—623(N)
Apparatus review: Comparison of Franck–Hertz tubes and apparatus, Bailey L. Donnally—366
Apparatus review: Evaluation of commercial apparatus for measuring *h/e*, Roger J. Hanson and Beryl E. Clotfelter—75
Apparatus review: The Ferranti guard ring diode. Magnetron determination of *e/m*, C. N. Wall—73
Cesium diode thermionic converter for laboratory experiments, R. G. Meyerand, Jr., and Robert H. Bullis—122
Development of a ruby laser system as an undergraduate project, O. T. Anderson and M. P. Bedesem—296
Development of some new experiments in nuclear and particle physics, Nuclear Workshop Conference—9
Do-it-yourself Knudsen gauge, B. Block, R. D. Moore, and P. Roos—159
Electric shock-tube experiment, James D. Hood—127
Electron-acoustic wave resonances, H. J. Schmitt—120
Electronic spark timer, Robert Kolenkow—536(N)
Equipment for nonuniform acceleration, Patricia M. Chefurka—706(L)
An evaluation of the Barnes Engineering Company model ES-100 educational spectrometer, Hoyt M. Kaylor—74
Inexpensive CO_2 molecular gas laser, S. Koozekanani, M. McCoy, and D. Rensch—989(N)
Laser experiments and apparatus for teaching purposes, Laser Workshop Conference—98
Low-velocity Mössbauer drive, A. Waheed and P. J. Ouseph—285(A)
Modifications for centripetal force apparatus, Patricia M. Chefurka—708(L)
Modified version of the MIT Rutherford scattering apparatus for use in advanced undergraduate laboratories, James A. Earl—483
New Atwood's machine attachment, Henry S. C. Chen—995
A note on a new Atwood's machine attachment, Henry S. C. Chen—187(A)
Precision high-resolution Mössbauer spectrometer, R. H. Nussbaum, F. Gerstenfeld, and J. K. Richardson—45
A simple apparatus to demonstrate the conservation of areal velocity in a field of central forces, D. Pescetti and C. Pontiggia—1063(N)
A simple electromechanical drive for Mössbauer experiments, P. J. Ouseph and A. Waheed—990(L)
A simple Mössbauer-effect apparatus, Alan D. Adler and Michael Hane—189
Simple Mössbauer spectrometer using x-ray films, E. Kankeleit—778
A simple pulsed nuclear magnetic resonance spectrometer, I. J. Lowe and D. Whitson—335
Spectrographic analysis with a small telescope and transmission grating, Kenneth Lyle Warren and Thomas E. Graedel—1056
Stopping potential for photoelectrons, Mario Iona—707(L)
Study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—301
Super-regenerative gaussmeters, D. Rector and S. Segel—704(N)
Theoretical and experimental determination of the two-dimensional potential field for a right-angled bend, Robin C. Steere—57
Two apparatuses—(a) Cheap 2°K experiment (b) Graphic Lissajous figures, M. J. Skove and E. P. Stillwell—283(A)
Two modifications of the Welch central force apparatus, Clement L. Henshaw and James N. Lloyd—981(N)
Use of Langmuir probes for low-density plasma diagnostics, O. K. Mawardi—112
A versatile, inexpensive neutron howitzer, W. S. Rawls and H. G. Voss—1182

Astronomy and astrophysics

Book review: *Matter, earth, and sky* by George Gamow; C. Harrison Dwight—447
Book review: *Neighbors of the earth: planets, comets, and the debris of space* edited by Thornton Page and Lou Williams Page; C. Harrison Dwight—368
Book review: *Solar radio astronomy* by M. R. Kundu; James W. Meyer—829
The extragalactic red shifts and photon degradation by spin reversal, T. Weiner—188(A)
Neutron capture and stellar nucleosynthesis: quantifying the qualitative, J. H. Gibbons—182(A)
Spectrographic analysis with a small telescope and transmission grating, Kenneth Lyle Warren and Thomas E. Graedel—1056

Atmospheric physics and meteorology

Book review: *Elements of cloud physics* by Horace Robert Byers; C. Harrison Dwight—446
Book review: *Galaxies, nuclei and quasars* by Fred Hoyle; Thornton Page—710
Book review: *Physics of the earth's upper atmosphere* edited by C. O. Hines, I. Paghis, T. R. Hartz, and J. A. Fejer; C. Harrison Dwight—630
Book review: *Principles and methods of measuring humidity in gases* by R. E. Ruskin; C. Harrison Dwight—543
Book review: *Whistlers and related ionospheric phenomena* by R. A. Helliwell; Agnar Pytte—81

Atomic physics

Atomic polarizability, William Davis Hall—286(TO)
Book review: *Atomic and space physics* by A. E. S. Green and P. J. Wyatt; E. A. Mason—1071
Book review: *Modern Physics* by R. L. Sproull; Lawrence Rozier Holland—1210
Compton effect and electron binding, William J. Veigele, P. T. Tracy, and E. M. Henry—1116
Estimate of molecular sizes and Avogadro's number from surface tension, E. A. Mason—1193(N)

Audiovisual materials and methods

Make your own sound teaching films in color for $2.69, Julian M. Pike—286(TO)
Portable anechoic chamber for 16 mm sound equipment, Glenn F. Powers—706(L)
Quantum-mechanical harmonic oscillator (a computer-produced film), Alfred M. Bork—470
Teaching college physics by closed-circuit television, W. E. Deeds—181(A)
The use of overhead projectors, Brother Columban Francis, FSC—721(A)

Biophysics

Book review: *The human eye and the sun* by S. I. Vavilov; A. L. King—1073
Dialogues concerning some old sciences—the Seattle interdisciplinary conference, E. Leonard Jossem—867
Radiation protection in teaching institutions, C. B. Braestrup—1193(N)
Resource letter PB-1 on physics and biology, D. James Baker, Jr.—83

Books

Book review: *Advanced methods of crystallography* edited by G. N. Ramachandran; Max R. Taylor—175
Book review: *Advanced quantum theory* by Paul Roman; Peter B. Kahn—831
Book review: *Alpha-, beta-, and gamma-ray spectroscopy* edited by Kai Siegbahn; Peter Axel—275
Book review: *Atomic and space physics* by A. E. S. Green and P. J. Wyatt; E. A. Mason—1071

Book review: *Atomic Diplomacy: Hiroshima and Potsdam* by Gar Alperovitz; R. C. Whitten—544
Book review: *Calculator's cunning* by K. Menninger; H. L. Armstrong—174
Book review: *Classical charged particles* by F. Rohrlich; David Park—1206
Book review: *Collected papers of Lord Rutherford of Nelson, Vol. III* published under the scientific direction of Sir James Chadwick; A. B. Arons—828
Book review: *Collected papers on acoustics* by Wallace Clement Sabine; C. Harrison Dwight—370
Book review: *Complex variable methods in science and technology* by J. Cunningham; Peter B. Kahn—373
Book review: *Concepts in physical science* by Sidney Rosen, Robert Siegfried, and John M. Dennison; Raymond J. Seeger—1206
Book review: *Conductors and semiconductors* by Alan Holden; Daniel B. Butrymowicz—279
Book review: *Cosmic radiation and high energy interactions* by V. D. Hopper; L. E. Porter—547
Book review: *Cosmic rays* by Bruno Rossi; L. E. Porter—373
Book review: *Curiosities of light rays and light waves* by S. Tolansky; K. Bennett Kolb—714
Book review: *Dialogues concerning two new sciences* by Galileo Galilei, translated by Henry Crew and A. De Salvio; C. Harrison Dwight—279
Book review: *Dictionary of pure and applied physics* by Louis de Vries and W. E. Clason; C. Harrison Dwight—278
Book review: *Differential equations of applied mathematics* by G. F. D. Duff and D. Naylor; Donald A. McQuarrie—1205
Book review: *Discovering physics* by Philip E. Heafford; H. L. Armstrong—708
Book review: *Documents on modern physics—John Gamble Kirkwood collected works. Vol. 1, Quantum statistics and cooperative phenomena* edited by F. H. Stillinger, Jr.; *Vol. 2, Dielectrics—intermolecular forces—optical rotation,* edited by R. H. Cole; E. A. Mason—1073
Book review: *Dynamical theory of groups and fields* by Bryce S. DeWitt; Albert A. Mullin—1209
Book review: *Early electrodynamics—the first law of circulation* by R. A. R. Tricker; William D. Foland—1210
Book review: *Electric and magnetic fields* by D. H. Tomboulian; W. M. Schwarz—1208
Book review: *Electricity and magnetism* by Edward M. Purcell; Benjamin F. Bayman—830
Book review: *Electricity and magnetism* by B. I. Bleaney and B. Bleany; H. L. Armstrong—629
Book review: *Electricity and magnetism* by W. J. Duffin; Schwab S. Major, Jr.—828
Book review: *Electrodynamics* by Leigh Page and Norman Adams, Jr.; Thornton Leigh Page—712
Book review: *Electromagnetic and quantum properties of materials* by A. Nussbaum; William W. Anderson—1072
Book review: *Electronics of solids* by W. R. Beam; Daniel B. Butrymowicz—370
Book review: *Electrons, atoms, metals, and alloys* by William Hume-Rothery; Raymond J. Seeger—177
Book review: *Elements of cloud physics* by Horace Robert Byers; C. Harrison Dwight—446
Book review: *Encounter with the future* by Fred Hoyle; R. C. Whitten—828
Book review: *Faraday, Maxwell, and Kelvin* by D. K. C. MacDonald; C. Harrison Dwight—276
Book review: *Flight to the stars* by James Strong; Thornton Page—715
Book review: *The flying trapeze: three crises for physicists* by J. Robert Oppenheimer; Raymond J. Seeger—173
Book review: *Foundations of plasma physics* by E. H. Holt and R. E. Haskell; Shelden H. Radin—280
Book review: *The Fourier transform and its application* by Ron Bracewell; Peter B. Kahn—712
Book review: *Fundamentals of college physics* by W. W. McCormick; R. Ronald Palmer—991
Book review: *Galaxies, nuclei and quasars* by Fred Hoyle; Thornton Page—710
Book review: *General relativity and cosmology* by G. C. McVittie; Thornton Page—542
Book review: *The habitable earth* by Ronald Frazer; C. Harrison Dwight—281
Book review: *Handbook of mathematical functions* edited by M. Abramowitz and I. Stegun; Donald A. McQuarrie—177
Book review: *High energy beam optics* by Klaus G. Steffen; A. L. King—1071
Book review: *How to find out about physics* by B. Yates; Robert A. Lufburrow—711
Book review: *The human eye and the sun* by S. I. Vavilov; A. L. King—1073
Book review: *Incompressible fluid dynamics* by J. N. Hunt and *Introduction to fluid dynamics* by E. B. McLeod; Raymond J. Seeger—173
Book review: *Introduction to general relativity* by R. Adler, M. Bazin, and M. Schiffer; Raymond J. Seeger—274
Book review: *Introduction to physics* by A. Kitaigorodsky; George D. Freier—992
Book review: *Kepler's conversation with Galileo's sidereal messenger* translated by Edward Rosen; J. P. Phillips—713
Book review: *Kinetic theory. Vol. 1, The nature of gases and heat* by S. G. Brush; E. A. Mason—1205
Book review: *A laboratory course in physics, book two* by D. L. Livesey, G. H. Cannon and T. Ryniak; H. L. Armstrong—628
Book review: *Lectures in theoretical physics, 1964, Vols. VII a, b, and c* edited by W. Brittin, A. O. Barut, and L. Marshall; David Park—1204
Book review: *Lectures on matter and equilibrium* by Terrell L. Hill; Roald K. Wangsness—1207
Book review: *Mathematical methods in physics* by J. S. R. Chisholm and R. M. Morris; A. A. Mullin—79
Book review: *Mathematical theory of optics* by R. K. Luneburg; Allen L. King—80
Book review: *Mathematics of choice or how to count without counting* by Ivan Niven; Albert A. Mullin—543
Book review: *Matter, earth, and sky* by George Gamow; C. Harrison Dwight—447
Book review: *Men of physics: L. D. Landau. Vol. I. Low temperature and solid state physics* edited by D. ter Haar; William D. Foland—1207
Book review: *Meson and baryon spectroscopy* by D. B. Lichtenberg; Richard A. Morrow—710
Book review: *Michael Faraday* by L. Pearce Williams; J. P. Phillips—175
Book review: *Mirrors, prisms and lenses: a textbook of geometrical optics* by James P. C. Southall; C. Harrison Dwight—373
Book review: *Modern physics* by R. L. Sproull; Lawrence Rozier Holland—1210
Book review: *The nature of solids* by Alan Holden; Thomas R. Carver—711
Book review: *Neighbors of the earth: planets, comets, and the debris of space* edited by Thornton Page and Lou Williams Page; C. Harrison Dwight—368
Book review: *Neutron physics* by K. H. Beckurts and K. Wirtz; Noel Corngold—831
Book review: *New foundations of quantum mechanics* by Alfred Landé; R. C. Whitten—1203
Book review: *The new intelligent man's guide to science* by Issaac Asimov; D. B. Butrymowicz—713
Book review: *Optical Physics* by Max Garbuny; Allen L. King—993
Book review: *Partial differential equations of mathematical physics* by S. L. Sobolev; Raymond J. Seeger—80
Book review: *Phase transitions* by Robert B. Brout; Noel Corngold—830
Book review: *Philosophical aspects of modern science* by C. E. M. Joad; Raymond J. Seeger—78
Book review: *Photometry* by John W. T. Walsh; Thornton Page—629
Book review: *Physics of the earth's upper atmosphere* edited by C. O. Hines, I. Paghis, T. R. Hartz, and J. A. Fejer; C. Harrison Dwight—630
Book review: *The physics of elementary particles* by H. Muirhead; D. Hywel White—712

Book review: *The physics of ice* by Elton R. Pounder; C. H. Hinrichs—827
Book review: *Principles and methods of measuring humidity in gases* by R. E. Ruskin; C. Harrison Dwight—543
Book review: *Principles of electrodynamics* by A. N. Matveyev; H. L. Armstrong—826
Book review: *The questioners: physicists and the quantum theory* by Barbara Lovett Cline; L. E. Porter—993
Book review: *Quick calculus, a short manual of self-instruction* by D. Kleppner and N. Ramsey; Marianne M. Emerson—546
Book review: *Relativistic quantum fields* by J. D. Bjorken and S. D. Drell; Peter B. Kahn—367
Book review: *Relativity and common sense: a new approach to Einstein* by Hermann Bondi; Raymond J. Seeger—372
Book review: *Scales and weights* by Bruno Kisch; Robert L. Weber—371
Book review: *Science in the 19th century* edited by Rene Taton; A. B. Arons—709
Book review: *The science of science* by Russell Fox, Max Garluny, and Robert Hooke; Raymond J. Seeger—176
Book review: *Second Coral Gables conference on symmetry principles at high energy* edited by B. Kurşunoğlu, A. Perlmutter, and I. Sakmar; A. A. Mullin—278
Book review: *A short course on the application of group theory to quantum mechanics* by Irene Schensted; Benjamin F. Bayman—628
Book review: *Solar radio astronomy* by M. R. Kundu; James W. Meyer—829
Book review: *Solids: Elementary theory for advanced students* by Gabriel Weinreich; Daniel B. Butrymowicz—1072
Book review: *Some electrical and optical aspects of molecular behavior* by Mansel Davies; Andrew G. De Rocco—176
Book review: *Space physics with artificial satellites* by Y. L. Al'Pert, A. V. Gurevich, and L. P. Pitaevskii; Thornton Page—544
Book review: *Special theory of relativity* by David Bohm; Raymond J. Seeger—373
Book review: *The statistical mechanics of simple liquids* by Stuart A. Rice and Peter Gray; Andrew G. De Rocco—1209
Book review: *Structure of atomic nuclei* by C. Sharp Cook; John L. Prather—371
Book review: *Symmetries in elementary particle physics* edited by A. Zichichi; L. E. Porter—1208
Book review: *A system of optical design* by Arthur Cox; Allen L. King—79
Book review: *Teach yourself statics and hydrostatics* by C. G. Lambe; H. L. Armstrong—829
Book review: *The teaching of physics* by J. W. Warren; Robert L. Weber—545
Book review: *Temperatures: very low and very high* by Mark W. Zemansky; C. Harrison Dwight—447
Book review: *A textbook of magnetohydrodynamics* by J. A. Shercliff; F. R. Scott—1204
Book review: *The theoretical significance of experimental relativity* by R. H. Dicke; Raymond J. Seeger—369
Book review: *Theory of elasticity and plasticity* by H. M. Westergaard; H. L. Armstrong—545
Book review: *Theory of energy and mass transfer* by A. V. Luikov and Yu. A. Mikhailov; Thornton Page—713
Book review: *Theory of relativity and a-priori knowledge* by Hans Reichenbach; Thornton Page—714
Book review: *Underwater acoustics handbook II* by Vernon M. Albers; Arnold Arons—546
Book review: *The velocity of light* by J. H. Sanders; Robert A. Lufburrow—1204
Book review: *Viscosity of electrolytes and related properties* by R. H. Stokes and R. Mills; H. L. Armstrong—280
Book review: *Weak interactions of elementary particles* by L. B. Okun; Hywel White—714
Book review: *Whistlers and related ionospheric phenomena* by R. A. Helliwell; Agnar Pytte—81
Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course, Herman Erlichson—519
Momentum books, Walter C. Michels—726(A)
Momentum books, Walter C. Michels—890
Physics problems and reality, Alfred Romer—626(L)

Chemical physics

Comment on some theorems of quantum chemistry, Jeremy I. Musher—267(N)
Dialogues concerning some old sciences—the Seattle interdisciplinary conference, E. Leonard Jossem—867
Book review: *Lectures on matter and equilibrium* by Terrell L. Hill; Roald K. Wangsness—1207
Book review: *Some electrical and optical aspects of molecular behavior* by Mansel Davies; Andrew G. De Rocco—176
Spectroscopy and thermochemistry: Electronic energy relationships between molecules and their fragments, K. Keith Innes—306
Transference numbers in ionized gases, L. H. Fisher and R. N. Varney—228
Book review: *Viscosity of electrolytes and related properties* by R. H. Stokes and R. Mills; H. L. Armstrong—280

Commission on College Physics

Activities of the commission on college physics, Matthew Sands—724(A)
The challenge, Matthew Sands—833
Dialogues concerning some old sciences—the Seattle interdisciplinary conference, E. Leonard Jossem—867
The graduate record examination advanced physics test as a predictor of performance, Walter C. Michels—862
A language for making movies on a computer, Robert K. Cralle—870
Momentum books, Walter C. Michels—890
"New physics" and the Minnesota conference on new materials for introductory physics courses for science and engineering majors, 6–8 May 1965, Peter G. Roll—872
Physicists and teachers, Arnold A. Strassenburg—885
Progress report of the commission on college physics, John M. Fowler—834
PSNS project at RPI, Elizabeth A. Wood—891

Computers

An automatic-programming keyboard computer system for physicists, P. L. Clem, Jr., M. R. Albert, and L. Morrow—283(A)
Computer assisted learning—conference after-thoughts, T. R. Palfrey, Jr.—724(A)
Computer assisted instruction in the laboratory, Robert L. Dough—282(A)
Computer program for "Application of the Cornu spiral to the semi-transparent half plane," Allen L. King—1067(L)
Computers and the nonscience major, Alfred M. Bork—926
Information requested about use of computers, Alfred M. Bork—1199(L)
A language for making films on a computer, Robert K. Cralle—724(A)
Language for making movies on a computer, Robert K. Cralle—870
On the use of computers in an undergraduate light and optics laboratory, Roger D. Hartman—793
Peek-a-boo cards used for a personal document file, William I. Thompson, III—822(N)
Undergraduate computer use, Paul A. Smith and Joseph Kasper—726(A)

Conferences and institutes

Book review: *Lectures in theoretical physics, 1964, Vols. VII a, b, and c* edited by W. Brittian, A. O. Barut, and L. Marshall; David Park—1204
Book review: *Second Coral Gables conference on symmetry principles at high energy* edited by B. Kurşunoğlu, A. Perlmutter, and I. Sakmar; A. A. Mullin—278
Latin American Fisk infrared spectroscopy institute, James R. Lawson, Nelson Fuson, and Ernest A. Jones—284(A)
Some comments on NSF secondary summer institutes in physics, Howard N. Maxwell—726(A)
Unfinished business, E. D. Lambe—725(A)

Cosmic rays

Some new questions relating to cosmic rays, Alfred Hendel—286(TO)

Courses

Applications of nuclear energy: a new course for the humanities, Lawrence Ruby—332
Computers and the nonscience major, Alfred M. Bork—926
Contemporary physics I and II, Jack G. Dodd—39
Curriculum development at the college level, Charles Kittel—721(TO)
Electrons, photons, and students, Alan M. Portis—1087
Evaluation of courses for nonmajors: experiences and recommendations, Ivan Aron—727(A)
Experiments in teaching captives, H. R. Crane—799
A first course in physics which emphasizes independent study and laboratory experience, Jack A. Soules—724(A)
Freshman physics for nonscience majors at the University of Tennessee, W. R. Rusk—188(A)
Integrated science for nonscience majors, Irving G. Forster—284(A)
Lab-less experiments for nonscience majors, Wm. C. Shaw—732(A)
A laboratory course in physical science, Charles Haller, Richard Franklin, and Richard Mihm—729(A)
Learner-centered general physics courses, Theodore W. Pohrte—1069(L)
Man made world, a new course for high schools, Edward E. David, Jr.—729(A)
Models and physical reality: a new approach to general physics for the liberal arts student, Bruce Hawkins and Michael Rice—185(A)
Models and physical reality: new laboratory experiments, Michael Rice and Bruce Hawkins—185(A)
A modern physics laboratory course, D. C. Martin—286(TO)
A new bachelor of science physics curriculum, John W. Stewart—185(A)
Note on photography instruction, Harry J. Baker—170(L)
On physics project laboratories, John G. King—1058
Physics curricula and industrial R&D or the neglected 42%, James Vollmer—408
A physics curriculum for liberal arts colleges, C. A. Hewell and M. C. Martin—820(N)
PSNS: A college course in physical science for nonscience majors, Elizabeth A. Wood—733(A)
Report of panel to discuss teaching of plasma physics in American universities, P. A. Sturrock—104
The what and how of college physical science, C. C. Clark—284(A)

Demonstrations

Bernoulli's law demonstrator, R. L. Hartman—445(L)
Demonstration analog of a critical-state phenomenon, Locke White, Jr.—68(N)
Demonstration: crowding of molecules in air, Eric M. Rogers—720(A)
Demonstration of single crystal making, Ronald A. Aziz—167(N)
Demonstration of the buildup and decay of radioactivity, Lawrence Ruby—246
Demonstrations and experiments at liquid-helium temperatures, G. L. Salinger and A. Leitner—692
Demonstrations of fluid flow in a rotating system, D. James Baker, Jr.—647
Determination of "g" through circular motion, Francis Wunderlich—1199(L)
Electric analog network for quantum mechanics, E. W. Cowan—1122
Electromagnetic analog of the quantum-mechanical tunnel effect, Julius J. Hupert and Gary Ott—260
Lecture demonstration open house, J. Holzman—729(A)
Mechanical double-slit demonstrations, W. Bruce Hawkins and Michael Rice—170(L)
Method for displaying lines of force in an electrostatic field, P. Cavanagh—1034
More monkey business, Neal D. Newby, Jr.—625(L)
The Mossbauer effect—a mechanical analogy, R. A. Llewellyn—183(A)
Photoelectric charging of an electroscope, J. E. Miller, A. R. Reed, and D. P. Miller—172(L)
Quantitative demonstration exhibits and a new low-cost physics laboratory, Harvey E. White, Hans Weltin, Mauri Gould, and Robert A. Rice—660
Simple demonstration of photoconductivity in CdS, Paul F. Mullaney—812
Simulated radioactivity, Robert Katz and J. J. Butts—986(N)
Stacking-fault model fcc–hcp unit-cell transformation, E. N. Sickafus—1064(N)
Thought stimulator on angular momentum, S. Schultz—1201(L)
Three-dimensional diagram of gyroscopic precession, Francis W. Sears—365(L)
Time dependence of fluorescent lamp emission—a simple demonstration, D. James Baker, Jr.—627(L)
Two overhead projector demonstrations, Ivan Aron—286(TO)
Visual observations of low energy electron beams, D. Haneman—289
Visualizing statistical thermodynamics: the Boltzmann distribution model, M. V. Sussman—1143

Education: physics and science

Book review: *Science and human values* by Jacob Bronowski; F. W. Swan—369
Book review: *Science citation index 1964* by E. Garfield; David Park—993
The challenge, Matthew Sands—833
Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course, Herman Erlichson—519
Computers and the nonscience major, Alfred M. Bork—926
Dialogues concerning some old sciences—the Seattle interdisciplinary conference, E. Leonard Jossem—867
Dialogues concerning some old sciences—the Seattle interdisciplinary conference, E. L. Jossem—725(A)
Educational assistance provided by the United States Atomic Energy Commission, Vincent E. Parker—319
Encouragement for the blind scientist, T. A. Benham—721(A)
Experiments in teaching captives, H. R. Crane—799
Joseph Henry and the relations between teaching and research, Charles Weiner—1093
Learner-centered general physics courses, Theodore W. Pohrte—1069(L)
Mathematical education for scientists and engineers, Hyman Serbin—1138
"New physics" and the Minnesota conference on new materials for introductory physics courses for science and engineering majors, 6–8 May 1965, Peter G. Roll—872
Physicists and teachers, Arnold A. Strassenburg—725(A)
Physicists and teachers, Arnold A. Strassenburg—885
A physics curriculum for liberal arts colleges, C. A. Hewett and M. C. Martin—820(N)
Physics in the elementary schools, Alexandra Calandra—727(A)
Premedical physics course modifications suggested by current trends in medical education, I. R. Neilsen—721(A)
Progress report of the commission on college physics, John M. Fowler—834
PSNS project at RPI, Elizabeth A. Wood—891
University physics in a developing country, D. H. Trevena—170(L)

Electricity and magnetism

Analog crystals and their dielectric behavior, E. J. Seykora and J. C. Theys—823(N)
Angular momentum of static electromagnetic fields, R. H. Romer—772
Apparatus for magnetic circuit experiments, Perry Sprawls, Jr.—623(N)
Apparatus review: the Ferranti guard ring diode. Magnetron determination of e/m, C. N. Wall—73
Authors' response to comments on "External dc field of a long solenoid," D. B. Brick and A. W. Snyder—818
Book review: *Classical charged particles* by F. Rohrlich; David Park—1206

Book review: *Early electrodynamics—the first law of circulation* by R. A. R. Tricker; William D. Foland—1210
Book review: *Electric and magnetic fields* by D. H. Tomboulian; W. M. Schwarz—1208
Book review: *Electricity and magnetism* by B. I. Bleaney and B. Bleany, H. L. Armstrong—629
Book review: *Electricity and magnetism* by Edward M. Purcell; Benjamin F. Bayman—830
Book review: *Electricity and magnetism* by W. J. Duffin; Schwab S. Major, Jr.—828
Book review: *Electrodynamics* by Leigh Page and Norman Adams, Jr.; Thornton Leigh Page—712
Book review: *Principles of electrodynamics* A. N. Matveyev; H. L. Armstrong—826
Book review: *Relativistic quantum fields* by J. D. Bjorken and S. D. Drell; Peter B. Kahn—367
Book review: *A textbook of magnetohydrodynamics* by J. A. Shercliff; F. R. Scott—1204
A Brown–Twiss interferometer experiment at microwave frequency, H. N. Rexroad—285(A)
Cerenkov radiation, Richard M. More—243
Comment on Chen's note on the magnetic pole, Gerard Nadeau—70(N)
Comments on "External dc field of a long solenoid," R. I. Joseph—817(N)
Compton effect and electron binding, William J. Veigele, Philip T. Tracy, and E. Michael Henry—1116
Currents induced by moving charges, Murray D. Sirkis and Nick Holonyak, Jr.—943
Derivation of boundary conditions in electromagnetic theory, Oldwig von Roos—535(N)
Derivation of Compton scattering relation in covariant notation, Gerald Farmer—614(N)
Derivation of conserved quantities from symmetries of the Lagrangian in field theory, Timothy H. Boyer—475
Direct integration of time-dependent Maxwell equations, H. Unz—1015
Early response to the theory of relativity in America, Stanley Goldberg—187(A)
Elastic collisions as Lorentz transformations with application to Compton scattering, Richard E. Siemon and Dale R. Snider—614(N)
Electric analog network for quantum mechanics, E. W. Cowan—1122
Electromagnetic analog of the quantum-mechanical tunnel effect, Julius J. Hupert and Gary Ott—260
The electromagnetic mass of the classical electron, J. W. Zink—211
Force-free magnetic field problem, Gabriel F. Freire—567
Formal analogy between Compton scattering and Doppler effect, A. Nielsen and J. Olsen—621(N)
Generalized conversion of electromagnetic units, measures, and equations, H. Gelman—291
Guided surface waves and the radiation from charges moving in curved paths, J. D. Lawson—601
Hysteresis loop, Hans Weltin—960
An integrated electricity–electronics course, Homer C. Wilkins—186(A)
The intensity of electron beams, John C. Helmer—222
Interaction energy of a dielectric in an electrostatic field, Victor Gilinsky and Dennis Holliday—1134
Intuition regarding the mechanism of conduction in battery-sustained steady current, John H. Mathews and John E. Ivory—186(A)
Lehmann–Symanzik–Zimmerman formalism in the one-boson Lee model, Leonard M. Scarfone—254
Linear momentum of quasistatic electromagnetic fields, M. G. Calkin—921
A macroscopic approach to Ohm's law, H. H. Denman and Boris Podolsky—814
Magnetic monopoles and invariance, Ronald Mirman—70(N)
Maxwell—out of Newton, Coulomb, and Einstein, Jack R. Tessman—1048
Maxwell's equations and determinate systems, D. T. Paris—618(N)
Maxwell's equations and determinate systems, John F. Streib—617(N)
Maxwell's equations in dynamics, Chien-Chung Cheng—622(N)
Measurement of moderately high resistance—a simple method, Claude W. Bruce—819(N)
Method for displaying lines of force in an electrostatic field, P. Cavanagh—1034
Models and physical reality: new laboratory experiments, Michael Rice and Bruce Hawkins—185(A)
Modified version of the MIT Rutherford scattering apparatus for use in advanced undergraduate laboratories, James A. Earl—483
Noninteraction between static electric and magnetic fields, S. P. Puri—162(N)
A note on Hertz's "derivation" of Maxwell's equations, Peter Havas—667
Novel way of introducing the concepts of a magnetic induction field to nonspecialist students, T. A. Clark—1069(L)
Nuclear magnetic resonance detector for demonstrations or magnetic field measurements, M. H. Proffitt and W. C. Gardiner, Jr.—163(N)
On understanding the basis of electrodynamics, F. W. Warburton—721(A)
Operator gauge transformations and gauge transformations of the third kind, T. K. Gaisser—597
Photoelectric charging of an electroscope, J. E. Miller, A. R. Reed, and D. P. Miller—172(L)
A radiation torque experiment, P. J. Allen—1185
Theoretical and experimental determination of the two-dimensional potential field for a right-angled bend, Robin C. Steere—57
Thermocouple corrections from irreversibility theory, R. A. Gaggioli and J. W. Mitchell—549
Thermodynamical systems involving magnetic fields, J. L. Mundy and V. L. Newhouse—1195(N)
Transformation properties of the electromagnetic field, R. Mirman—427
Yang–Mills groups and fields, Allen C. Dotson—670
Zero-point energy and the Lamb shift, Edwin A. Power—516

Electronics

Apparatus for teaching and research in electron physics, B. R. F. Kendall and H. M. Luther—580
Apparatus review: the Ferranti guard ring diode. Magnetron determination of e/m, C. N. Wall—73
Book review: *Electronics of solids* by W. R. Beam; Daniel B. Butrymowicz—370
Book review: *High energy beam optics* by Klaus G. Steffen; A. L. King—1071
Book review: *Whistlers and related ionospheric phenomena* by R. A. Helliwell; Agnar Pytte—81
Bright image amplification radiography, Donald F. Pierce—286(TO)
Demonstrations with an electronic peg board, Howard Powell—286(A)
Electronic spark timer, Robert Kolenkow—536(N)
The imaging of atoms with the electron microscope, T. A. Welton—182(A)
An integrated electricity–electronics course, Homer C. Wilkins—186(A)
The intensity of electron beams, John C. Helmer—222
Laboratory experiment on Fourier synthesis, B. L. Robinson and D. Glassman—183(A)
Modified version of the MIT Rutherford scattering apparatus for use in advanced undergraduate laboratories, James A. Earl—483
Stopping potential for photoelectrons, Mario Iona—707(L)
Undergraduate experiment on thermal and shot noise, James A. Earl—575
Visual observations of low energy electron beams, D. Haneman—289

Experiments

An acoustical interferometer for "open-ended" laboratory, Robert A. Boyer—946
Advanced optical experiment—an extension, D. Bloor—624(N)
Apparatus review: evaluation of commercial apparatus for measuring h/e, Roger J. Hanson and Beryl E. Clotfelter—75

Apparatus review: the Ferranti guard ring diode. Magnetron determination of e/m, C. N. Wall—73
Book review: *A laboratory course in physics; book two* by D. L. Livesey, G. H. Cannon, and T. Ryniak; H. L. Armstrong—628
Cesium diode thermionic converter for laboratory experiments, R. G. Meyerand, Jr., and Robert H. Bullis—122
Demonstrations and experiments at liquid-helium temperatures, G. L. Salinger and A. Leitner—692
Development of some new experiments in nuclear and particle physics, nuclear workshop conference report, A. M. Sachs—9
Direct measurement of g by second differences, John H. Mathews—187(A)
Do-it-yourself Knudsen gauge, B. Block, R. D. Moore, and P. Roos—159
Electric shock-tube experiment, James D. Hood—127
Electron-acoustic wave resonances, H. J. Schmitt—120
An experiment in elementary particle physics for the elementary laboratory, H. Whiteside, J. N. Palmieri, and R. A. Burnstein—1005
Experiment in rigid body dynamics, Hans Weltin—764
An experimental method of determining the matrix elements of an optical system, Anthony Gerrard—67(N)
Graphing self-absorption curves with ordinary gamma-ray absorption data, Carter V. Rabinoff and Irving Boekelheide—130
An instructive bomb experiment, L. Alberts—707(L)
Laser experiments and apparatus for teaching purposes, Laser Workshop Conference—98
The lengthening pendulum: an experiment to test the adiabatic approximation, W. Paul Ganley—718(A)
Measurement of moderately high resistance—a simple method, C. W. Bruce—819(N)
Mechanics laboratory for home study, Victor K. Wrigley—732(A)
Models and physical reality: new laboratory experiments, Michael Rice and Bruce Hawkins—185(A)
A radiation torque experiment, P. J. Allen—1185
Report of panel to discuss teaching of plasma physics in American universities, P. A. Sturrock—104
Resonant detection of light pressure, G. Burniston Brown—272(L)
A rotational dynamics experiment, Clifton Bob Clark—720(A)
Selected experiments from the Rensselaer workshop, W. Eppenstein—184(A)
A simple apparatus to demonstrate the conservation of areal velocity in a field of central forces, D. Pescetti and C. Pontiggia—1063(N)
Simple momentum experiment with dry-ice pucks, Edward B. McNeil—719(A)
A simple Mössbauer-effect apparatus, Alan D. Adler and Michael Hane—189
Simulated radioactivity, Robert Katz—720(A)
Student experiment on Coriolis force, John C. Hegarty—157
Study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—301
Tube effects on sound propagation through real fluids, I. Carl Romer, Jr.—192
Undergraduate experiment on thermal and shot noise, James A. Earl—575
Use of Langmuir probes for low-density plasma diagnostics, O. K. Mawardi—112

Films

Animated films, Judith Bregman—722(A)
Computer-generator films, W. H. Huggins—722(A)
A language for making films on a computer, Robert K. Cralle—724(A)
Make your own sound teaching films in color for $2.69, Julian M. Pike—286(TO)
Quantum mechanical harmonic oscillator—a computer produced film, Alfred M. Bork—730(A)
Quantum-mechanical harmonic oscillator (a computer-produced film), Alfred M. Bork—470
Using films in and out of the classroom, Walter Eppenstein—722(A)

Fluids: liquids and gases

Bernoulli's law demonstrator, Richard L. Hartman—445(L)
Book review: *Incompressible fluid dynamics* by J. N. Hunt and *Introduction to fluid dynamics* by E. B. McLeod; Raymond J. Seeger—173
Book review: *Kinetic theory. Vol. 1, The nature of gases and heat* by S. G. Brush; E. A. Mason—1205
Book review: *Principles and methods of measuring humidity in gases* by R. E. Ruskin; C. Harrison Dwight—543
Book review: *The statistical mechanics of simple liquids* by Stuart A. Rice and Peter Gray; Andrew G. De Rocco—1209
Book review: *Teach yourself statics and hydrostatics* by C. G. Lambe; H. L. Armstrong—829
Book review: *Viscosity of electrolytes and related properties* by R. H. Stokes and R. Mills; H. L. Armstrong—280
Demonstrations of fluid flow in a rotating system, D. James Baker, Jr.—647
Do-it-yourself Knudsen gauge, B. Block, R. D. Moore, and P. Roos—159
Dynamic consequences of intermolecular attraction in gases, W. C. Thoburn—136
An experimental study of the energy-loss processes of fast ions passing through gases, John T. Park—373(TO)
Mechanical paradox, Hans Weltin—172(L)
Refined method for measuring the sound wavelength in gases—discussion, A. S. El-Hakeem, R. A. Gaggioli, and I. C. Romer, Jr.—1197(N)
Role of intermolecular attractions in liquids and gases, W. C. Thoburn—132
Significance of some equations of state obtained from shock-wave data, M. Cowperthwaite—1025
Surface vibrations of liquids, M. Ramanadham—538(N)
Theoretical and experimental determination of the two-dimensional potential field for a right-angled bend, Robin C. Steere—57
Transference numbers in ionized gases, L. H. Fisher and R. N. Varney—228
Visual observations of low energy electron beams, D. Haneman—289
The water flask with unequal holes, Eric Weissman—1126

General physics: educational aspects

Book review: *How to find out about physics* by B. Yates; Robert A. Lufburrow—711
Book review: *The new intelligent man's guide to science* by Isaac Asimov; D. B. Butrymowicz—713
Book review: *Teaching of physics* by J. W. Warren; Robert L. Weber—545
Contemporary physics I and II, Jack G. Dodd—39
Physics problems and reality, Alfred Romer—626(L)

General physics: instructional techniques

Book review: *Concepts in physical science* by Sidney Rosen, Robert Siegfried, and John M. Dennison; Raymond J. Seeger—1206
Book review: *Discovering physics* by Philip E. Heafford; H. L. Armstrong—708
Book review: *Fundamentals of college physics* by W. W. McCormick; R. Ronald Palmer—991
Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course, Herman Erlichson—519
Introductory physics experiments using a digital computer, John F. Ahearne—309
Models and physical reality: a new approach to general physics for the liberal arts student, Bruce Hawkins and Michael Rice—185(A)
On physics project laboratories, John G. King—1058
Some thoughts on classroom teaching, L. I. Schiff—454
Vector differential operations derived from physical definitions, Vladislav Bevc—507
Writing laboratory reports, A. Kshatriya and W. Thumm—539(L)

Geophysics

Book review: *Concepts in physical science* by Sidney Rosen, Robert Siegfried, and John M. Dennison; Raymond J. Seeger—1206

Book review: *The habitable earth* by Ronald Frazer; C. Harrison Dwight—281
Through the earth in forty minutes, Paul W. Cooper—68(N)

Heat and thermodynamics

Book review: *Kinetic theory. Vol. 1, The nature of gases and heat* by S. G. Brush; E. A. Mason—1205
Book review: *Lectures on matter and equilibrium* by Terrell L. Hill; Roald K. Wangsness—1207
Book review: *Temperatures: very low and very high* by Mark W. Zemansky; C. Harrison Dwight—447
Book review: *Theory of energy and mass transfer* by A. V. Luikov and Yu. A. Mikhailov; Thornton Page—713
Carnot cycle diagrams, A. H. Kalantar—979
Comment on Riggsby's letter: Oooops! what you said!, K. N. Shrivastava—627(L)
Demonstration analog of a critical-state phenomenon, Locke White, Jr.—68(N)
Equations of state and the second law of thermodynamics, Alfred Levitas—767
Kelvin and Carathéodory—a reconciliation, Mark W. Zemansky—731(A)
Kelvin and Carathéodory—a reconciliation, Mark W. Zemansky—914
A logical proof of the entropy principle, Lila L. Gatlin—266(N)
The microscopic interpretation of entropy, David H. Frisch—1171
A modified form of Carathéodory's second axiom, Francis W. Sears—730(A)
Modified form of Carathéodory's second axiom, Francis W. Sears—665
Significance of some equations of state obtained from shock-wave data, M. Cowperthwaite—1025
Temperature in a sector of an annulus, Walter P. Reid—1196(N)
Theoretical and experimental determination of the two-dimensional potential field for a right-angled bend, Robin C. Steere—57
Thermocouple corrections from irreversibility theory, R. A. Gaggioli and J. W. Mitchell—549
Thermodynamical systems involving magnetic fields, J. L. Mundy and V. L. Newhouse—1195(N)
Undergraduate experiment on thermal and shot noise, James A. Earl—575
Velocity of sound in air, J. L. Redding—626(L)
Visualing statistical thermodynamics: the Boltzmann distribution model, M. V. Sussman—1143
Whaples's proof of existence of temperature, Pau-Chang Lu—401

High-energy physics

Book review: *Cosmic radiation and high energy interactions* by V. D. Hopper; L. E. Porter—547
Book review: *Cosmic rays* by Bruno Rossi; L. E. Porter—373
Book review: *Meson and baryon spectroscopy* by D. B. Lichtenberg; Richard A. Morrow—710
Book review: *Second Coral Gables conference on symmetry principles at high energy* edited by B. Kurşunoğlu, A. Perlmutter, and I. Sakmar; Albert A. Mullin—278
Book review: *Symmetries in elementary particle physics* edited by A. Zichichi; L. E. Porter—1208
Book review: *The physics of elementary particles* by H. Muirhead; D. Hywel White—712
Book review: *Weak interactions of elementary particles* by L. B. Okun; D. Hywel White—714
Comments on a paper by Majorana concerning elementary particles, David M. Fradkin—314
An experiment in elementary particle physics for the elementary laboratory, H. Whiteside, J. N. Palmieri, and R. A. Burnstein—1005
Experiments with fast pions in emulsion, D. T. King—182(A)
Kinematics of scattering and decay processes, Per Nyborg—932
Origin of SU_3 symmetry in elementary particles, P. Sen—690
Resource letter SAP-1 on subatomic particles, Clifford E. Swartz—1079
Some new questions relating to cosmic rays, Alfred Hendel—286(TO)

History and biography

Anniversaries in 1966 of interest to physicists, E. Scott Barr—19
Aristotle's views on theory and experiment, H. L. Armstrong—168(L)
Book review: *Atomic diplomacy: Hiroshima and Potsdam* by Gar Alperovitz; R. C. Whitten—544
Book review: *Collected papers of Lord Rutherford of Nelson, vol. III* published under the scientific direction of Sir James Chadwick; A. B. Arons—828
Book review: *Conductors and semiconductors* by Alan Holden; Daniel B. Butrymowicz—279
Book review: *Dialogues concerning two new sciences* by Galileo Galilei, translated by Henry Crew and A. De Salvio; C. Harrison Dwight—279
Book review: *Documents on modern physics—John Gamble Kirkwood Collected Works. Vol. 1, Quantum statistics and cooperative phenomena* edited by F. H. Stillinger, Jr.; *Vol. 2, Dielectrics–intermolecular forces–optical rotation*, edited by R. H. Cole; E. A. Mason—1073
Book review: *Early electrodynamics—the first law of circulation* by R. A. R. Tricker; William D. Foland—1210
Book review: *Faraday, Maxwell, and Kelvin* by D. K. C. MacDonald, F.R.S.; C. Harrison Dwight—276
Book review: *Michael Faraday* by L. Pearce Williams; J. P. Phillips—175
Book review: *Kepler's conversation with Galileo's sidereal messenger* translated by Edward Rosen; J. P. Phillips—713
Book review: *Men of physics: L. D. Landau, Vol. I. Low temperature and solid state physics* edited by D. ter Haar; William D. Foland—1207
Book review: *New foundations of quantum mechanics* by Alfred Landé; R. C. Whitten—1203
Book review: *The questioners: physicists and the quantum theory* by Barbara Lovett Cline; L. E. Porter—993
Book review: *Science in the 19th century* edited by Rene Taton; A. B. Arons—709
Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course, Herman Erlichson—720(A)
Comments on a paper by Majorana concerning elementary particles, David M. Fradkin—314
Descartes on the refraction and the velocity of light, John G. Burke—390
The development of vector analysis from quaternions, Reginald J. Stephenson—194
Drake, Galileo, and the law of inertia, John P. Losee—430
Educational uses of an awareness of history of evolution of various physical concepts, Arnold Arons—720(A)
Estimate of molecular sizes and Avogadro's number from surface tension, E. A. Mason—1193(N)
Evolution of masers and lasers, Bela A. Lengyel—903
The evolution of the Balmer series, Leo Banet—496
G. S. Ohm's experimental basis for the law of current electricity, John L. McKnight—721(A)
Joseph Henry and the relations between teaching and research, Charles Weiner—1093
Kepler's *Harmonics* and his concept of inertia, Edward Rosen—610
Kepler's third law, R. A. Aziz—538(N)
Mach's critique of Newtonian mechanics, Mario Bunge—585
Maxwell—out of Newton, Coulomb, and Einstein, Jack R. Tessman—1048
Maxwell's ovals and the refraction of light, Milton H. Sussman—416
Misinterpretation of theories of light, Esther B. Sparberg—377
Old doctrines and new sciences, Raymond J. Seeger and Max Jammer—72(L)
On "Maxwell's ovals and the refraction of light," James Rainwater—1200(L)
On "Maxwell's ovals and the refraction of light," Milton H. Sussman—1200(L)
Predictions of the gravitational bending of light before Einstein, Henry G. Hadley—162(N)
Quantum fact and fiction. II, Alfred Landé—1160
Resonant detection of light pressure, G. Burniston Brown—272(L)
Resource letter ECAN-1 on the electronic charge and Avogadro's number, David L. Anderson—2

Vectors versus quaternions—the letters in *Nature*, Alfred M. Bork—202
A widely-available but easily overlooked source for portraits of early physicists, E. Scott Barr—283(A)
William Shipley's barometer (1748), E. U. Condon—358(N)

Laboratory arts and techniques

Book review: *Laboratory course in physics, book two* by D. L. Livesey, G. H. Cannon, and T. Ryniak; H. L. Armstrong—628
Computer assisted instruction in the laboratory, Robert L. Dough—282(A)

Laboratory: organization and operation

Electrons, photons, and students, Alan M. Portis—1087
On physics project laboratories, John G. King—1058
On the use of computers in an undergraduate light and optics laboratory, Roger D. Hartman—793
Quantitative demonstration exhibits and a new low-cost physics laboratory, Harvey E. White, Hans Weltin, Mauri Gould, and Robert A. Rice—660
Structuring laboratory work in physics, David S. Martin—729(A)
Writing laboratory reports, A. Kshatriya and W. Thumm—539(L)

Light

Advanced optical experiment—an extension, D. Bloor—624(N)
Application of the Cornu spiral to the semitransparent half plane, M. Parker Givens and William L. Goffe—248
An application of matrix optics, David M. Eakin and Sumner P. Davis—758
Autocorrelation spectroscopy, Judd Q. Bartling—974
Book review: *Curiosities of light rays and light waves* by S. Tolansky; K. Bennett Kolb—714
Book review: *The human eye and the sun* by S. I. Vavilov; A. L. King—1073
Book review: *Mathematical theory of optics* by R. K. Luneburg; Allen L. King—80
Book review: *Mirrors, prisms and lenses: a textbook of geometrical optics* by James P. C. Southall; C. Harrison Dwight—373
Book review: *Optical physics* by Max Garbuny; Allen L. King—993
Book review: *Photometry* by John W. T. Walsh; Thornton Page—629
Book review: *A system of optical design* by Arthur Cox; Allen L. King—79
Book review: *The velocity of light* by J. H. Sanders; Robert A. Lufburrow—1204
Bright image amplification radiography, Donald F. Pierce—286(TO)
A Brown–Twiss interferometer experiment at microwave frequency, H. N. Rexroad—285(A)
Classical theory of optical detection, Adriaan Walther—521
Computer assisted instruction in the laboratory, Robert L. Dough—282(A)
Computer program for "Application of the Cornu spiral to the semitransparent half plane," Allen L. King—1067(L)
A corpuscular model for light, Kemp Bennett Kolb—729(A)
Counting photons in the optical barrier penetration experiment, Darryl D. Coon—240
A demonstration of a laser, R. F. Gabbard—285(TO)
Descartes on the refraction and the velocity of light, John G. Burke—390
Elementary physics of plane mirror interferometry, C. F. Mooney and B. L. Barlow—732(A)
An evaluation of the Barnes Engineering Company model ES-100 educational spectrometer, Hoyt M. Taylor—74
The evolution of the Balmer series, Leo Banet—496
An experimental method of determining the matrix elements of an optical system, Anthony Gerrard—67(N)
Hyperfine and Zeeman effect studies with a Fabry–Perot etalon and a Lummer–Gehrcke plate, Irving Resnick—731(A)
The infrared program of the University of Tennessee: the study of line shapes and strengths, Norman M. Gailar—186(A)
The intensity of electron beams, John C. Helmer—222
Interferometric study of the modes of a visible gas laser with a Michelson interferometer, J. J. ten Bosch and M. J. A. de Voight—479
Interpretation of Fresnel's equations for isotropic dielectrics, Ajit S. Rupaal—442
Laser experiments and apparatus for teaching purposes, Laser Workshop Conference—98
Latin American Fisk infrared spectroscopy institute, James R. Lawson, Nelson Fuson, and Ernest A. Jones—284(A)
Laws of reflection and refraction: photon flux, John F. Streib—1197(N)
Matrix optics conventions, C. K. Crawford—1198(N)
Maxwell's ovals and the refraction of light, Milton H. Sussman—416
Misinterpretation of theories of light, Esther B. Sparberg—377
Monitoring operators in magnetic resonance and light modulation, Thomas R. Carver and Robert B. Partridge—339
Note on photography instruction, Harry J. Baker—170(L)
On "Maxwell's ovals and the refraction of light," James Rainwater—1200(L)
On "Maxwell's ovals and the refraction of light," Milton H. Sussman—1200(L)
Optical near field of a He–Ne laser, H. J. Caulfield and D. D. Eden—439
Optical ray tracing replacing reciprocal equations by linear equations, M. W. Minkler—732(A)
The quandary of academic optics, Stanley S. Ballard—184(A)
A research topic for small colleges: thermoluminescence, Julian A. Crawford—235
Resonant detection of light pressure, G. Burniston Brown—272(L)
Some color demonstrations, J. Singerman—729(A)
Spectrographic analysis with a small telescope and transmission grating, Kenneth Lyle Warren and Thomas E. Graedel—1056
A study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—181(A)
Time dependence of fluorescent lamp emission—a simple demonstration, D. James Baker, Jr.—627(L)
To scatter a photon by a photon, Gerald Rosen—788
Two equivalent valence electrons, Y. F. Bow—67(N)
An undergraduate Stern–Gerlach apparatus, Melvin D. Daybell—187(A)
Use of computers in an undergraduate light and optics laboratory, Roger D. Hartman—793
Zeeman quadrupole resonance in powders, Stanley Segel—286(TO)

Low-temperature physics

Demonstrations and experiments at liquid-helium temperatures, A. Leitner and G. L. Salinger—183(A)
Demonstrations and experiments at liquid-helium temperatures, G. L. Salinger and A. Leitner—692
An introduction to superconductivity: excerpts from a new film, Alfred Leitner—722(A)
Statistical and thermodynamic aspects of magnetic cooling, Harold Weinstock—731(A)
Two apparatuses—(a) Cheap 2°K experiment, (b) Graphic Lissajous figures, M. J. Skove and E. P. Stillwell—283(A)

Mathematics

Accidental degeneracy, David F. Greenberg—1101
Approaching the square root of two, Stephen H. Forbes—154
Book review: *Calculator's cunning* by K. Menninger; H. L. Armstrong—174
Book review: *Complex variable methods in science and technology* by J. Cunningham; Peter B. Kahn—373
Book review: *Differential equations of applied mathematics* by G. F. D. Duff and D. Naylor; Donald A. McQuarrie—1205
Book review: *Dynamical theory of groups and fields* by Bryce S. DeWitt; Albert A. Mullin—1209
Book review: *The Fourier transform and its application* by Ron Bracewell; Peter B. Kahn—712
Book review: *Handbook of mathematical functions* edited by M. Abramowitz and I. Stegun; Donald A. McQuarrie—177
Book review: *Mathematical methods in physics* by J. S. R. Chisholm and R. M. Morris; Albert A. Mullin—79

Book review: *Mathematics of choice or how to count without counting* by Ivan Niven; Albert A. Mullin—543
Book review: *Partial differential equations of mathematical physics* by S. L. Sobolev; Raymond J. Seeger—80
Book review: *Quick calculus, a short manual of self-instruction* by D. Kleppner and N. Ramsey; Marianne M. Emerson—546
Book review: *A short course on the application of group theory to quantum mechanics* by Irene Schensted; Benjamin F. Bayman—628
The case against the exponential, Donald L. Shirer—186(A)
Comment on "Analytic expression for angular velocity," John I. Shonle—818(N)
A course in dimensional analysis, H. C. Scheinler—283(A)
Demonstration analog device for solving linear simultaneous equations, K. S. Chandrasekaran—359(N)
Derivation of conserved quantities from symmetries of the Lagrangian in field theory, Timothy H. Boyer—475
The development of vector analysis from quaternions, Reginald J. Stephenson—194
Elementary boundary value problems, Alfred A. Kraus, Jr.—436
An elementary relaxation calculation, Frank R. Haig, S.J.—285(A)
Grad ϕ and curl $\mathbf{v}$, J. C. Burns—268(N)
Introductory physics experiments using a digital computer, John F. Ahearne—309
Mathematical education for scientists and engineers, Hyman Serbin—1138
Mathematical physics for high-school teachers, Paul O. Hoffmann—185(A)
Maxwell's ovals and the refraction of light, Milton H. Sussman—416
Multiple transforms for mathematical physics courses, W. G. N. Slinn—93
Note on the Fourier series, David Gray—1063(N)
On linear friction in Lagrange's equation, Harry H. Denman—1147
Origin of SU_3 symmetry in elementary particles, P. Sen—690
Overhead projection studies of error propagation, Hilbert Schenck, Jr.—726(A)
Permutation symbol approach to elementary vector analysis, Arthur A. Evett—503
Polar vectors and axial vectors in real 3-space, A. V. Masket—164(N)
Polar vectors and axial vectors in real 3-space, A. V. Masket—723(A)
A simple experiment on the concept of probability, Stanley T. Nolan and F. H. Mitchell—284(A)
A study on predicting performance in university physics and mathematics, H. W. Dosso—269(N)
Teaching Dirac notation and relations among systems of units, Paul A. Smith—677
Transformation of operators, Leon Cohen—684
Transformation properties of the electromagnetic field, R. Mirman—427
Undetermined multiplier treatments of the Lagrange problem, G. H. Goedecke—571
Vector differential operations derived from physical definitions, Vladislav Bevc—507
Vectors versus quaternions—the letters in *Nature*, Alfred M. Bork—202
What are spinors?, Wolfgang Rindler—937

Mechanics, classical

Accelerometer, Hans Weltin—825(L)
Accidental degeneracy, David F. Greenberg—1101
Addendum to "Note on the inequivalence of classical and quantum Hamiltonians," F. J. Kennedy, Jr. and E. H. Kerner—271(L)
Additivity of mass in Newtonian mechanics, N. Feather—511
Airy points of a meter bar, Frederick M. Phelps III—419
Another derivation of Euler's equations of rigid-body rotation, David L. Mott—1197(N)
Bernoulli's law demonstrator, Richard L. Hartman—445(L)
Book review: *Dialogues concerning two new sciences* by Galileo Galilei, translated by Henry Crew and A. De Salvio; C. Harrison Dwight—279
Book review: *Incompressible fluid dynamics* by J. N. Hunt and *Introduction to fluid dynamics* by E. B. McLeod; Raymond J. Seeger—173
Book review: *Teach yourself statics and hydrostatics* by C. G. Lambe; H. L. Armstrong—829
Book review: *Theory of elasticity and plasticity* by H. M. Westergaard; H. L. Armstrong—545
Classical canonical transformations without the use of Hamilton's principle, F. Ansbacher—1020
Comment on "Analytic expression for angular velocity," John I. Shonle—818(N)
Comments on an analytic expression for angular velocity, A. V. Masket—983(N)
Comments on "Through the earth in forty minutes," Russell L. Mallett—702(N)
Conservation of angular momentum, Boris Podolsky—42
Conservation of angular momentum in relativistic dynamics, Charles N. Hamtil—723(A)
Conservation solutions, J. N. Palmieri—272(L)
Contrasting lessons in mechanics—an evaluation of objectives, Wm. Naison—729(A)
Correction to resource letter CM-1, John I. Shonle—273
Demonstrations of fluid flow in a rotating system, D. James Baker, Jr.—647
Derivation of Compton scattering relation in covariant notation, Gerald Farmer—614(N)
Determination of "g" through circular motion, Francis Wunderlich—1199(L)
Direct measurement of g by second differences, John H. Mathews—187(A)
Drake, Galileo, and the law of inertia, John P. Losee—430
Driving mechanism for a Foucault pendulum, Don W. Miller and G. Wayne Caudill—615(N)
Dynamic elastic constants, M. A. Omar—1179
Elastic collisions as Lorentz transformations with application to Compton scattering, Richard E. Siemon and Dale R. Snider—614(N)
Equivalent vector Lorentz transformations, Louis Gold—930
An example of the need for adequate references, Philip G. Kirmser—701(N)
Experiment in rigid body dynamics, Hans Weltin—764
Experiments with physical pendulums, George W. Horton—187(A)
Falling cylinders, M. E. Gardner—822(N)
Further commentary on "Through the earth in forty minutes," Paul W. Cooper—703(N)
Gyroscopic nutation, P. G. Guest—188(A)
How to make the world go 'round, R. R. Silbar—705(L)
An instructive bomb experiment, L. Alberts—707(L)
Inverted pendulum with damping, S. S. Joshi—533(N)
Is it mass or is it energy? Ronald Mirman—272(L)
Kepler's *Harmonics* and his concept of inertia, Edward Rosen—610
Kepler's third law, R. A. Aziz—538(N)
Kepler's third law and the mass of the moon, Franklin Miller, Jr.—53
Kinematics of finite, rigid body displacements, Millard F. Beatty—949
A laboratory model for inverse-square central force motion, James L. Cronin, Jr., and Leonard C. Jones—719(A)
Laws of motion, George L. Trigg—71(L)
Laws of motion. II, George L. Trigg—988(N)
Laws of motion for variable mass systems, Christopher P. Gadsden—987(N)
The lengthening pendulum: an experiment to test the adiabatic approximation, W. Paul Ganley—718(A)
Mach's critique of Newtonian mechanics, Mario Bunge—585
Mechanical paradox, Hans Weltin—172(L)
More monkey business, Neal D. Newby, Jr.—625(L)
A multilevel sequence of experiments with pendulums, Richard Davisson and Alan Holden—724(A)
New Atwood's machine attachment, Henry S. C. Chen—955
Noncentral forces, J. C. Burns—164(N)
Nonholonomic constraints, John R. Ray—406
Nonholonomic constraints (erratum), John R. Ray—1202
A note on a new Atwood's machine attachment, Henry S. C. Chen—187(A)
Nutation, Phillip M. Rinard—365(L)

On linear friction in Lagrange's equation, Harry H. Denman—1147
On the derivation of Newton's laws, Harry H. Denman—286(TO)
On the form in which Newton's law is expressed, H. L. Armstrong—982(N)
On the measurement of the coefficient of restitution of the "super ball," F. X. Spiegel and B. J. Weigman—719(A)
On the need of housecleaning in the teaching of mechanics, H. L. Armstrong—1031
Optimum damping, H. L. Armstrong—824(N)
Particle in a potential box and adiabatic expansion of wall, John W. Rhee—723(A)
Quadratic constants of the motion for the classical harmonic oscillator, Lincoln E. Bragg and L. R. Turner—963
Relativistic equations of motion with forces depending on particle velocity in media, G. Cavalleri—901
The relativistic rocket, Kalman B. Pomeranz—565
Reply to Hooper's letter, H. L. Armstrong—364(L)
Reply to Joshi's comments on a damping term in the equations of motion of the inverted pendulum, F. M. Phelps, III, and J. H. Hunter, Jr.—533(N)
Resonant detection of light pressure, G. Burniston Brown—272(L)
Rotary-motion demonstration apparatus, Richard E. Garrett—283(A)
A rotational dynamics experiment, Clifton Bob Clark—720(A)
A simple apparatus to demonstrate the conservation of areal velocity in a field of central forces, D. Pescetti and C. Pontiggia—1063(N)
Simple derivation of satellite paradox, John W. Rhee—615(N)
Simple momentum experiment with dry-ice pucks, Edward B. McNeil—719(A)
Structure of physical theory, R. E. Collins—489
Student experiment on Coriolis force, John C. Hegarty—157
Study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—301
Surface energy of soap bubbles, K. G. Ramanathan—169(L)
Surface vibrations of liquids, M. Ramanadham—538(N)
Terrestrial brachistochrone, Giulio Venezian—701(N)
Theoretical analysis of a two-dimensional scattering experiment, Albert Koenig and B. J. Weigman—719(A)
Thought stimulator on angular momentum, S. Schultz—1201(L)
Three-dimensional diagram of gyroscopic precession, Francis W. Sears—365(L)
Through the earth in forty minutes, Paul W. Cooper—68(N)
Torque on a rigid body in circular orbit, David L. Mott—562
Trajectory for minimum transit time through the earth—702(N)
Two-circle roller, A. T. Stewart—166(N)
A two-dimensional scattering experiment, Charles Krapp and B. J. Weigman—719(A)
Two free fall demonstrations, Oleg Jefimenko—720(A)
Two modifications of the Welch central force apparatus, Clement L. Henshaw and James N. Lloyd—981(N)
Undetermined multiplier treatments of the Lagrange problem, George H. Goedecke—571
The water flask with unequal holes, Eric Weissman—1126
Weighing the moon, H. L. Armstrong—985(N)
Weight and mass, William Hooper—364(L)

Mechanics, quantum

Accidental degeneracy, David F. Greenberg—1101
Addendum to "Note on the inequivalence of classical and quantum Hamiltonians," F. J. Kennedy, Jr., and E. H. Kerner—271(L)
The advent of quantum theory—a personal report, Hartmut P. Kallmann—723(TO)
Are electrons real? W. V. Houston—351
Book review: *Advanced quantum theory* by Paul Roman; Peter B. Kahn—831
Book review: *Electromagnetic and quantum properties of materials* by A. Nussbaum; W. W. Anderson—1072
Book review: *New foundations of quantum mechanics* by Alfred Landé; R. C. Whitten—1203
Book review: *Relativistic quantum fields* by J. D. Bjorken and S. D. Drell; Peter B. Kahn—367
Book review: *A short course on the application of group theory to quantum mechanics* by Irene Schensted; Benjamin F. Bayman—628
Comment on some theorems of quantum chemistry, Jeremy I. Musher—267(N)
Counting photons in the optical barrier penetration experiment, Darryl D. Coon—240
Derivation of conserved quantities from symmetries of the Lagrangian in field theory, Timothy H. Boyer—475
Eigenfunctions of the hydrogen atom in momentum space, James J. Klein—1039
Electric analog network for quantum mechanics, E. W. Cowan—1122
Electromagnetic analog of the quantum-mechanical tunnel effect, Julius J. Hupert and Gary Ott—260
The evolution of the Balmer series, Leo Banet—496
A formulation of quantum mechanical perturbation theory, Edwin M. Roberts—895
Ground state of the one-dimensional hydrogen atom, M. Andrews—1194(N)
Isobaric spin without charge space, B. F. Bayman—216
Ladder operator solution for the hydrogen atom electronic energy levels, Carl W. David—984(N)
Laws of reflection and refraction: photon flux, John F. Streib—1197(N)
Lehmann–Symanzik–Zimmerman formalism in the one-boson Lee model, Leonard M. Scarfone—254
Magnetic monopoles and invariance, Ronald Mirman—70(N)
Maxwell's equations in dynamics, Chien-Chung Cheng—622(N)
Monitoring operators in magnetic resonance and light modulation, Thomas R. Carver and Robert B. Partridge—339
More on the arrow of time, Robert H. Penfield—422
Note on a famous derivation of $E = mc^2$, Carl J. Rigney and Roy H. Biser—623(N)
The 1- and 2-dimensional hydrogen atom in quantum mechanics, Harold K. Hughes—723(A)
Operator gauge transformations and gauge transformations of the third kind, T. K. Gaisser—597
Orbital angular momentum operator in spherical coordinate system, V. F. Bow—537(N)
Origin of SU_3 symmetry in elementary particles, P. Sen—690
Potential scattering, K. T. Tang—152
Propagators in nonrelativistic quantum mechanics, L. A. Beauregard—324
Quantum fact and fiction. II, Alfred Landé—1160
Quantum-mechanical harmonic oscillator (a computer-produced film), Alfred M. Bork—470
Quantum-mechanical tunneling, J. H. Fermor—1168
Quantum mechanics as a model, Tomas Buch—653
Quantum theory of the forced harmonic oscillator, D. M. Gilbey and F. O. Goodman—143
The role of time in quantum mechanics, Steven Weinberg—728(A)
Second quantization as a graded Hilbert space representation, Donald H. Kobe—1150
Simple derivation of the Bloch equation, D. ter Haar—1164
Spin without commutation rules, Saul T. Epstein—762
Structure of physical theory, R. E. Collins—489
Teaching Dirac notation and relations among systems of units, Paul A. Smith—677
To scatter a photon by a photon, Gerald Rosen—788
Transformation of operators, Leon Cohen—684
Two equivalent valence electrons, Y. F. Bow—67(N)
Uncertainty and diffraction, H. J. Caulfield—1066(N)
Uncertainty principle and normal operators, Malcolm Bersohn—62
Uncertainty principle and normal operators—some comments, Wesley E. Brittin—957
What are spinors? Wolfgang Rindler—937
WKB treatment of bound states in an electric dipole potential, Kenneth Fox and J. E. Turner—606
Yang–Mills groups and fields, Allen C. Dotson—670
Zero-point energy and the Lamb shift, Edwin A. Power—516

Mechanics, statistical

Approximations in the treatment of an assembly of localized systems, A. D. Maude and David H. Trevena—539(N)
Book review: *Documents on modern physics—John Gamble Kirkwood Collected Works. Vol. 1, Quantum statistics and cooperative*

phenomena edited by F. H. Stillinger, Jr.; *Vol. 2, Dielectrics–intermolecular forces–optical rotation*, edited by R. H. Cole; E. A. Mason—1073
Book review: *Kinetic theory. Vol. 1, The nature of gases and heat* by S. G. Brush; E. A. Mason—1205
Book review: *The statistical mechanics of simple liquids* by Stuart A. Rice and Peter Gray; Andrew De Rocco—1209
Book review: *Theory of energy and mass transfer* by A. V. Luikov and Yu. A. Mikhailov; Thornton Page—713
Demonstration: crowding of molecules in air, Eric M. Rogers—720(A)
Diffusion as a problem of statistical path, Behram Kurşunoğlu—1043
Dynamic consequences of intermolecular attraction in gases, W. C. Thoburn—136
Dynamical properties of a one-dimensional "crystal" with free ends, John R. Clem and Robert P. Godwin—460
An experimental introduction to kinetic theory, Harold A. Daw—724(A)
How do we explain the effects of intermolecular attractions in fluids to undergraduates? W. C. Thoburn—730(A)
Irreversibility in simple systems, Arthur Hobson—411
The microscopic interpretation of entropy, David H. Frisch—1171
The relation between the number of complexions in Maxwell–Boltzmann and in Fermi–Dirac statistics, Marvin C. Tobin—1064(N)
Role of intermolecular attractions in liquids and gases, W. C. Thoburn—132
A simplified derivation of Bogoliubov's generalized Boltzmann equation, William Bober—807
A simple experiment on the concept of distribution function, F. H. Mitchell and Stanley T. Nolan—284(A)
Structure of physical theory, R. E. Collins—489
Surface energy of soap bubbles, K. G. Ramanathan—169(L)

Modern physics

An advanced laboratory in atomic and nuclear physics, F. E. Dunnam—282(A)
Apparatus review: Comparison of Franck–Hertz tubes and apparatus; Bailey L. Donnally—366
Apparatus review: Evaluation of commercial apparatus for measuring *h/e*, Roger J. Hanson and Beryl E. Clotfelter—75
Apparatus review: The Ferranti guard ring diode. Magnetron determination of *e/m*, C. N. Wall—73
Are electrons real? W. V. Houston—351
Book review: *Structure of atomic nuclei* by C. Sharp Cook; John L. Prather—371
Mechanical double-slit demonstration, W. Bruce Hawkins and Michael Rice—170(L)
Michigan State University cyclotron report, Aron Galonsky—286(TO)
Outlook in physics for the next five years, George E. Pake—373(TO)
Photoelectric charging of an electroscope, J. E. Miller, A. R. Reed, and D. P. Miller—172(L)
Resource letter ECAN-1 on the electronic charge and Avogadro's number, David L. Anderson—2
Two equivalent valence electrons, Y. F. Bow—67(N)
Zero-point energy and the Lamb shift, Edwin A. Power—516

Nuclear physics

An activation analysis experiment for any physics department budget, H. E. Banta and J. L. Duggan—181(A)
An advanced laboratory in atomic and nuclear physics, F. E. Dunnam—282(A)
Applications of nuclear energy: a new course for the humanities, Lawrence Ruby—332
Are zero rest mass particles necessarily stable? Peter Havas—753
Book review: *Alpha-, beta-, and gamma-ray spectroscopy* edited by Kai Siegbahn; Peter Axel—275
Book review: *The collected papers of Lord Rutherford of Nelson, Vol. III* published under the scientific direction of Sir James Chadwick; A. B. Arons—828
Book review: *Meson and baryon spectroscopy* by D. B. Lichtenberg; Richard A. Morrow—710
Book review: *Neutron physics* by K. H. Beckurts and K. Wirtz; Noel Corngold—831
Book review: *Structure of atomic nuclei* by C. Sharp Cook; John L. Prather—371
Cerenkov radiation, Richard M. More—243
Comments on a paper by Majorana concerning elementary particles, David M. Fradkin—314
Demonstration of the buildup and decay of radioactivity, Lawrence Ruby—246
The development of some new experiments in nuclear and particle physics, Nuclear Workshop Conference—9
Direct nuclear interactions to low-lying levels of B^9 using the B^{10} (He^3, α) reaction, Hoyt R. Hiddleston—373(TO)
Effects of lattice vibrations on γ–γ angular correlations, Lum-Han Tang—286(TO)
Graphing self-absorption curves with ordinary gamma-ray absorption data, Carter V. Rabinoff and Irving Boekelheide—130
A half-life measurement in 1054 A.D., H. R. Crane—286(TO)
Isobaric spin without charge space, B. F. Bayman—216
Kinematics of scattering and decay processes, Per Nyborg—932
The $^7Li(p, \alpha)\alpha$ reaction, an ideal experiment for the modern physics laboratory, W. D. Adams and Jerome L. Duggan—181(A)
Low velocity Mossbauer drive, A. Waheed and P. J. Ouseph—285(A)
Michigan State University cyclotron report, Aron Galonsky—286(TO)
A modified version of the MIT Rutherford scattering apparatus for use in advanced undergraduate laboratories, James A. Earl—483
The Mössbauer effect for gold 197 in ferromagnetic alloys, J. O. Thomson—186(A)
Mössbauer experiments in external magnetic fields, I. Fundamentals, N. A. Blum and R. B. Frankel—731(A)
Nuclear magnetic resonance detector for demonstrations or magnetic field measurements, M. H. Proffitt and W. C. Gardiner, Jr.—163(N)
A physical description of the nucleon–nucleon force, Alex E. S. Green—723(A)
Precision high resolution Mössbauer spectrometer, R. H. Nussbaum, F. Gerstenfeld, and J. K. Richardson—45
Pu/Be simulated reactor units, H. C. Dudley—283(A)
Radiation protection in teaching institutions, C. B. Braestrup—1193(N)
Resource letter SAP-1 on subatomic particles, Clifford E. Swartz—1079
A simple Mössbauer effect apparatus, Alan D. Adler and Michael Hane—189
A simple Mössbauer spectrometer using x-ray films, E. Kankeleit—778
Simple pulsed nuclear magnetic resonance spectrometer, I. J. Lowe and D. Whitson—335
Simulated radioactivity, Robert Katz—720(A)
Simulated radioactivity, Robert Katz and J. J. Butts—986(N)
The use of a neutron generator in an undergraduate nuclear laboratory, J. J. Veit and Richard H. Lindsay—723(A)
A versatile, inexpensive neutron howitzer, W. S. Rawls and H. G. Voss—1182

Particles, elementary

Book review: *Second Coral Gables conference on symmetry principles at high energy* edited by B. Kurşunoğlu, A. Perlmutter, and I. Sakmar; Albert A. Mullin—278

Philosophy of science

Additivity of mass in Newtonian mechanics, N. Feather—511
Book review: *New foundations of quantum mechanics*, Alfred Landé; R. C. Whitten—1203
Book review: *Philosophical aspects of modern science* by C. E. M. Joad; Raymond J. Seeger—78
Book review: *Science and human values* by Jacob Bronowski; F. W. Swan—369
Collateral readings in the philosophy and history of physics for the introductory science and engineering physics course, Herman Erlichson—519
Mach's critique of Newtonian mechanics, Mario Bunge—585

Quantum fact and fiction. II, Alfred Landé—1160
Quantum mechanics as a model, Tomas Buch—653

Physics in foreign lands

University physics in a developing country, D. H. Trevana—170(L)

Plasma physics

Book review: *Foundations of plasma physics* by E. H. Holt and R. E. Haskell; Shelden H. Radin—280
Book review: *A textbook of magnetohydrodynamics* by J. A. Shercliff; F. R. Scott—1204
Cesium diode thermionic converter for laboratory experiments, Russell G. Meyerand, Jr., and Robert H. Bullis—122
Electric shock-tube experiment, James D. Hood—127
Electron-acoustic wave resonances, H. J. Schmitt—120
Force-free magnetic field problem, Gabriel F. Freire—567
Interaction of 3-cm microwaves with a mercury plasma, Joel A. Gwinn and William L. Kruer—286(A)
Plasma instabilities and the problem of controlled fusion, Edward G. Harris—182(A)
Report of panel to discuss teaching of plasma physics in American universities, P. A. Sturrock—104
Transference numbers in ionized gases, L. H. Fisher and R. N. Varney—228
Use of Langmuir probes for low-density plasma diagnostics, O. K. Mawardi—112

Properties of matter

Book review: *Electrons, atoms, metals, and alloys* by William Hume-Rothery; Raymond J. Seeger—177
Book review: *Some electrical and optical aspects of molecular behaviour* by Mansel Davies; Andrew G. De Rocco—176
Estimate of molecular sizes and Avogadro's number from surface tension, E. A. Mason—1193(N)

Quantum electronics

Advanced laboratory experiments on optical pumping of rubidium atoms—part I: magnetic resonance, Michael Nagel and F. E. Haworth—553
Advanced laboratory experiments on optical pumping of rubidium atoms—part II: free precession, Michael Nagel and F. E. Haworth—559
A demonstration of a laser, R. F. Gabbard—285(TO)
Development of a ruby laser system as an undergraduate project, O. T. Anderson and M. P. Bedesem—296
Evolution of masers and lasers, Bela A. Lengyel—903
Inexpensive CO_2 molecular gas laser, S. Koozekanani, M. McCoy, and D. Rensch—989(N)
Interferometric study of the modes of a visible gas laser with a Michelson interferometer, J. J. ten Bosch and M. J. A. de Voight—479
Laser experiments and apparatus for teaching purposes, Laser Workshop Conference—98
Monitoring operators in magnetic resonance and light modulation, Thomas R. Carver and Robert B. Partridge—339
Studies of laser light scattered by a moving surface, Joseph Morgan and R. J. Lysiak—433
Study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—301

Relativity and gravitation

An *anschaulichkeitsbeweis* for special relativity, George Goe—780
An *anschaulichkeitsbeweis* for special relativity (erratum), George Goe—1202
Are zero rest mass particles necessarily stable? Peter Havas—753
Book review: *General relativity and cosmology* by G. C. McVittie; Thornton Page—542
Book review: *Introduction to general relativity* by R. Adler, M. Bazin, and M. Schiffer; Raymond J. Seeger—274
Book review: *Relativity and common sense: a new approach to Einstein* by Hermann Bondi; Raymond J. Seeger—372
Book review: *Special theory of relativity* by David Bohm; Raymond J. Seeger—273
Book review: *Theoretical significance of experimental relativity* by R. H. Dicke; Raymond J. Seeger—369
Book review: *Theory of relativity and a-priori knowledge* by Hans Reichenbach; Thornton Page—714
Deductions from a kinematic principle of relativity, Eric Drake—889
Deductions from a kinematic principle of relativity (erratum), Eric Drake—1202
The electromagnetic mass of the classical electron, J. W. Zink—211
Equations of motion and coordinate covariance in general relativity, J. L. Ging—63
Equivalent vector Lorentz transformations, Louis Gold—930
Formal analogy between Compton scattering and Doppler effect, A. Nielsen and J. Olsen—621(N)
Graphical aids in the teaching of special relativity, Robert Kohler—1128
A gravitational paradox, Jean-Marc Lévy-Leblond and Peter Thurnauer—1110
Kruskal space and the uniformly accelerated frame, W. Rindler—1174
Mass and energy, K. Bennett Kolb—705(N)
Measurement of the relativistic transverse Doppler effect, H. F. Meiners and R. A. Llewellyn—183(A)
Mössbauer experiment on the relativistic time dilatation, J. W. Weinberg, B. L. Robinson, J. K. Major, and U. O. Herrmann—184(A)
Note on a famous derivation of $E = mc^2$, Carl J. Rigney and Roy H. Biser—623(N)
On relativistic theories, F. Rohrlich—987(N)
Precision high-resolution Mössbauer spectrometer, R. H. Nussbaum, F. Gerstenfeld, and J. K. Richardson—45
Predictions of the gravitational bending of light before Einstein, Henry G. Hadley—162(N)
Relativistic equations of motion with forces depending on particle velocity in media, G. Cavalleri—901
The relativistic rocket, Kalman B. Pomeranz—565
Relativity and the Lorentz transformation, A. V. Masket—270(N)
Special relativity without the postulate of constancy of light, V. Mitvalsky—825(N)
Tempest in the relativistic teapot, Francis W. Sears—363(L)
Time and physical geometry, Hilary Putnam—727(A)
Time dilation and twin problem in general relativity, John Williams Rhee—724(A)
Time in relativity and cosmology, R. K. Sachs—728(A)
What are spinors?, Wolfgang Rindler—937

Reports, announcements, and news

AAPT organization table for 1966, Melba Phillips—733
Apparatus review: Evaluation of commercial apparatus for measuring *h/e*, Roger J. Hanson and Beryl E. Clotfelter—75
Duane Roller, Oersted medalist of 1949—445
Membership in AAPT, Newell S. Gingrich—373(TO)
"Oersted certificates" for distinguished physics teachers: a proposal, Myron S. McKay—284(A)
The Physics Teacher, a report on the journal, J. W. Buchta—730(A)
Proceedings of the AAPT, Ralph P. Winch—634
Report by regional AIP and AAPT counselor, Alexander Calandra—374(TO)
Report of panel to discuss teaching of plasma physics in American universities, P. A. Sturrock—104
Report of the editors for the year 1965, Walter C. Michels and W. Paul Ganley—452
Report on AAPT council meeting, W. M. Pierce—286(TO)
Report on the conference of the Harvard project physics, Louis V. Holroyd—374(TO)
Report on the Harvard project physics course for high school students, D. C. Martin—286(TO)

Research

A developing university and the NASA multidisciplinary research program, Donald E. Cunningham—185(A)
High-school teacher research participation program at Iowa State University, John W. Layman—374(TO)

Independent study and undergraduate research projects, Wallace A. Hilton and John L. Philpot—373(TO)
Participation by college and university faculty and students in research activities at AEC laboratories, Louis A. Rayburn—181(A)
A research topic for small colleges: thermoluminescence, Julian A. Crawford—235

Resource letters

Correction to resource letter CM-1, John I. Shonle—273
Resource letter ECAN-1 on the electronic charge and Avogadro's number, David L. Anderson—2
An historical note and summary regarding resource letters, A. B. Arons—540
Resource letter PA-1 on particle accelerators, John P. Blewett—742
Resource letter PB-1 on physics and biology, D. James Baker, Jr.—83
Resource letter PP-2 on plasma physics: Waves and radiation processes in plasmas, G. Bekefi and Sanborn C. Brown—1001
Resource letter SAP-1 on subatomic particles, Clifford E. Swartz—1079

Rockets and satellites

Torque on a rigid body in circular orbit, David L. Mott—562

Secondary school physics

Book review: *Discovering physics* by Philip E. Heafford; H. L. Armstrong—708
Book review: *The science of science* by Russell Fox, Max Garluny, and Robert Hooke; Raymond J. Seeger—176
Education of the science technically inclined student at secondary level. Panel: Henry Becker, Kenneth Mustain, and Marvin Fridley—374(TO)
Elementary school science based on quantitative analysis, Clifford E. Swartz—732(A)
High school physics: green teachers, black boxes, red tape, Bernhard A. Sachs—729(A)
The introductory physical science program of Educational Services, Inc., Edward A. Shore—730(A)
Mathematical physics for high-school teachers, Paul O. Hoffmann—185(A)
"Oersted certificates" for distinguished physics teachers: a proposal, Myron S. McKay—284(A)
Presentation of resolution on teacher certification, John W. Layman—373(TO)
Progress report on the pre-college physics program of the American Institute of Physics, Philip Youngner—726(A)
Some remarks on the quality of high-school physics, Naomi M. Timmerman—730(A)

Social and economic aspects of science

Book review: *Encounter with the future* by Fred Hoyle; R. C. Whitten—828
Book review: *The flying trapeze: three crises for physicists* by J. Robert Oppenheimer; Raymond J. Seeger—173
Peek-a-boo cards used for a personal document file, William I. Thompson, III—822(N)

Solid-state physics

Advanced laboratory experiments on optical pumping of rubidium atoms—part I: magnetic resonance, Michael Nagel and F. E. Haworth—553
Advanced laboratory experiments on optical pumping of rubidium atoms—part II: free precession, Michael Nagel and F. E. Haworth—559
Analog crystals and their dielectrical behavior, E. J. Seykora and J. C. Theys—823(N)
Book review: *Advanced methods of crystallography* edited by G. N. Ramachandran; Max R. Taylor—175
Book review: *Conductors and semiconductors* by Alan Holden; Daniel B. Butrymowicz—279
Book review: *Electromagnetic and quantum properties of materials* by A. Nussbaum; W. W. Anderson—1072
Book review: *Electronics of solids* by W. R. Beam; Daniel B. Butrymowicz—370
Book review: *Electrons, atoms, metals and alloys* by William Hume-Rothery; Raymond J. Seeger—177
Book review: *Men of physics: L. D. Landau, Vol. I. Low temperature and solid state physics* edited by D. ter Haar; William D. Foland—1207
Book review: *The nature of solids* by Alan Holden; Thomas R. Carver—711
Book review: *Phase transitions* by Robert B. Brout; Noel Corngold—830
Book review: *The physics of ice* by Elton R. Pounder; C. H. Hinrichs—827
Book review: *Solids: Elementary theory for advanced students* by Gabriel Weinreich; Daniel B. Butrymowicz—1072
Born's continuum theory of solids, S. C. Saxena and C. M. Kachhava—704(N)
Calculation of order parameters of perfectly ordered Cu_3Au and CuZn, an exercise in number theory, George L. Hall and Donald O. Christy—526
Demonstration of single crystal making, Ronald A. Aziz—167(N)
Dynamic elastic constants, M. A. Omar—1179
Dynamical properties of a one-dimensional "crystal" with free ends, John R. Clem and Robert P. Godwin—460
Effects of lattice vibrations on γ–γ angular correlations, Lum-Han Tang—286(TO)
Enumerating neighbors in diamond-like lattices, A. V. M. Ferris-Prabhu—645
Low-velocity Mössbauer drive, A. Waheed and P. J. Ouseph—285(A)
A macroscopic approach to Ohm's law, H. H. Denman and Boris Podolsky—814
Measurement of the relativistic transverse Doppler effect, H. F. Meiners and R. A. Llewellyn—183(A)
The Mössbauer effect—a mechanical analogy, R. A. Llewellyn—183(A)
The Mössbauer effect for gold 197 in ferromagnetic alloys, J. O. Thomson—186(A)
Mössbauer experiment on the relativistic time dilatation, J. W. Weinberg, B. L. Robinson, J. K. Major, and U. O. Herrmann—184(A)
Mössbauer experiments in external magnetic fields: II. applications, R. B. Frankel and N. A. Blum—731(A)
Nuclear magnetic resonance detector for demonstrations or magnetic field measurements, M. H. Proffitt and W. C. Gardiner, Jr.—163(N)
On the behavior of quasi-Fermi levels in a nonequilibrium semiconductor, Nick Holonyak, Jr., and Murray D. Sirkis—619(N)
Precision high-resolution Mössbauer spectrometer, R. H. Nussbaum, F. Gerstenfeld, and J. K. Richardson—45
Proving the Bragg law, J. M. Peskett and F. A. Underwood—1067(L)
A research topic for small colleges: thermoluminescence, Julian A. Crawford—235
Simple demonstration of photoconductivity in CdS, Paul F. Mullaney—812
Simple derivation of the Bloch equation, D. ter Haar—1164
A simple electromechanical drive for Mössbauer experiments, P. J. Ouseph and A. Waheed—990(L)
A simple Mössbauer-effect apparatus, Alan D. Adler and Michael Hane—189
Simple pulsed nuclear-magnetic resonance spectrometer, I. J. Lowe and D. Whitson—335
Stacking-fault model fcc–hcp unit-cell transformation, E. N. Sickafus—1064(N)
Strain pattern in the interior of piezo-electrically oscillating quartz plates, Carl E. Howe—182(A)
A study of the simple harmonic oscillator by means of F center absorption, Thomas J. Turner—181(A)
Study of the simple harmonic oscillator by means of F-center absorption, Thomas J. Turner—301
X-ray diffraction and the Bragg law, L. R. B. Elton and Daphne F. Jackson—1036

Sound

Acoustical interferometer for "open-ended" laboratory, Robert A. Boyer—946

Angular distribution of the acoustic radiation from a tuning fork, R. M. Sillitto—639
Book review: *Collected papers on acoustics* by Wallace Clement Sabine; C. Harrison Dwight—370
Book review: *Underwater acoustics handbook II* by Vernon M. Albers; Arnold Arons—546
An improved velocity of sound apparatus, A. L. Feldman—729(A)
New Doppler shift experiments, L. Muldawer and H. F. Meiners—184(A)
Refined method for measuring the sound wavelength in gases—discussion, A. S. El-Hakeem, R. A. Gaggioli, and I. C. Romer, Jr.—1197(N)
Rijke tube apparatus, R. E. Evans and A. A. Putnam—360(N)
Tube effects on sound propagation through real fluids, I. Carl Romer, Jr.—192
Velocity of sound in air, J. L. Redding—626(L)

Space physics

Book review: *Atomic and space physics* by A. E. S. Green and P. J. Wyatt; E. A. Mason—1071
Book review: *Flight to the stars* by James Strong; Thornton Page—715
Book review: *Space physics with artificial satellites* by Y. L. Al'Pert, A. V. Gurevich, and L. P. Pitaevskii; Thornton Page—544

Teacher training

Discussion of a proposal submitted to the National Science Foundation upon the training of high school physics teachers in Missouri, Louis V. Holroyd—374(TO)

Testing: theory and techniques

The graduate record examination advanced physics test as a predictor of performance, Walter C. Michels—862
Knowing physics is not enough, Mlle V. Anderson—727(A)
Physicists and teachers, A. A. Strassenburg—725(A)
Professional preparation of high school physics teachers, V. G. Drozin—726(A)
Some teaching techniques aimed at consolidation of the student's acquired knowledge, W. A. Rogers—727(A)
Study on predicting performance in University physics and mathematics, H. W. Dosso—269(N)
A thorough test program to aid teaching, Carl F. Stocker—727(A)

Textbooks (see Books)

Units, dimensions, and terminology

Book review: *Dictionary of pure and applied physics* by Louis deVries and W. E. Clason; C. Harrison Dwight—278
Book review: *Scales and weights: a historical outline* by Bruno Kisch; Robert L. Weber—371
Generalized conversion of electromagnetic units, measures, and equations, H. Gelman—291
Mass and energy, K. Bennett Kolb—705(N)
Teaching Dirac notation and relations among systems of units, Paul A. Smith—677

Waves

Angular distribution of the acoustic radiation from a tuning fork, R. M. Sillitto—639
A Brown–Twiss interferometer experiment at microwave frequency, H. N. Rexroad—285(A)
The Doppler effect, D. T. Turnbull—359(N)
Electric shock-tube experiment, James D. Hood—127
A film to aid in the teaching of the wave vector concept, H. B. Huntington and G. L. Salinger—184(A)
New Doppler shift experiments, L. Muldawer and H. F. Meiners—184(A)
Rijke tube apparatus, R. E. Evans and A. A. Putnam—360(N)
Significance of some equations of state obtained from shock-wave data, M. Cowperthwaite—1025
Sonic-boom formation demonstrated by surface waves on water, Sherman L. Gerhard—719(A)
Tube effects on sound propagation through real fluids, I. Carl Romer, Jr.—192
Uncertainty and diffraction, H. J. Caulfield—1066

X rays

Proving the Bragg law, J. M. Peskett and F. A. Underwood—1067(L)
What's new in x-ray spectroscopy? John S. Thomsen—731(A)
X-ray diffraction and the Bragg law, L. R. B. Elton and Daphne F. Jackson—1036